COAL AGE

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The "Old Man"

JOHN A. HILL, the founder of COAL AGE, is dead, but the ideals he created and the standards he set will live and be perpetuated longer than the steel and stone structure that he built to house his papers.

Now more than ever before I realize that character, based on honesty, justice and humanity, is what a man bequeaths to those that survive him.

JOHN HILL was honest. His critic's lament was that he paid too much, never too little. He told the truth always, never seeking nor deigning to leave a road for retreat. His words carried no double meaning, and his promises were to him solemn contracts. His honesty was not only of the money kind, but moral as well, and it was not observed as a mere matter of policy to be changed with any shift of his personal interests. He had the courage to be right rather than popular, and he would then trust to time for vindication and recognition.

Justice stands for strength in character, and it was in this quality that MR. HILL weighed heaviest. His decisions were regulated not by the person, but by the cause, and he always believed that nothing was settled until it was settled right. Without conscience the brightest intellect may be but a false light. In JOHN HILL conscience was sovereign, and with him might alone did not make right.

His humanity was shown in a hundred ways, but perhaps the structure he built for his employees typified best of all his kindness and thoughtfulness for those who served him. His idea of charity was to make those who are dependent on it independent of it. He believed that helping others to help themselves was better than gifts of money. However, he realized that material help in some cases was necessary, and in the last year or two he had given thought to a plan for old-age pensions.

MR. HILL was the antidote for fear. When satisfied his cause was right, he would hazard all. Facing momentary death for more than two years—for he knew full well the gravity of his physical affliction—he did just what he said he would do—he died in harness. He was careful and lived a most abstemious life, doing everything possible to prolong his days; but having done his duty, all thought of self ended, for there were no moments of complaint.

He was the echo of no one, nor in any way the reflection of common conventions. Everything was tributary to his one purpose in life. Like the needle of a compass, he knew but one point, was dominated by one unwavering aim. All his ideas, hopes and possibilities were anchored about a single ideal. He did one thing supremely, not many things indifferently. He was a living proof of the truth that highest excellence is attained by one person in one vocation. He succeeded because he had one overmastering idea.

I am glad I served JOHN HILL ten years. I wish it had been longer. However, some men live on after death through the ideals and high standards they set, and he was one such. His life taught that honest, heroic work, coupled with self-denial, will not fail of reward, and although it may not be the reward we set out to win, it will be something richly worth the sacrifice and effort put forth.

FLOYD W. PARSONS.

Simplicity in Tipple Design

By R. G. Miller*

SYNOPSIS—A description of a tipple in the design of which simplicity was constantly kept in mind. Facilities have been secured whereby ample and fair docking may be done without stopping or interfering with the operation of hoisting.

Keener competition and a constantly increasing expense of production have forced the bituminous mining industry to seek some relief by the reduction of one or another of these costs, and many suggestions with this object in view have been made.

The idea of a central power station to serve a group of mines is a good one and will perhaps some day be generally realized. This will eliminate considerable waste and improve conditions in many plants throughout the country.

Other ideas, of which all progressive engineers and operators are mindful, are the simplifying of structures and machinery, the elimination of all unnecessary equipment and a bettering and a standardization of the methods of sizing and cleaning coal.

Efficiency is now the watchword in all industries. Efficiency applied to tipple design and operation is becoming more and more general with operators. To be able to make improvements one must know where and why losses occur. To prevent or at least check losses and to properly handle capital and labor are the chief business of a good executive. It is his duty to recognize and adopt the new devices that are offered to facilitate better, more rapid and more efficient production and preparation.

Correct tipple design is plainly simplicity. This is the first step toward efficiency and maximum capacity. Moreover, decreased costs of operation and maintenance, the elimination of shutdowns and a better preparation will be the final results of a simplified tipple design.

The object of this article is the description of a steel tipple recently completed at Pomeroy, Ohio, in the design of which first thought was given to simplicity of structure and equipment. This plant marks great progress in cheaper and better preparation and is a close approximation to the imaginary ideal tipple recently described in *Coal Age*.[1]

To simplify the hoisting tower, automatic self-dumping safety cages are used for hoisting the pit cars which dump run-of-mine coal into a pair of chutes at the dumping point. Standard Ohio bar screens are provided and equipped with cover plates. This provision was necessary because of the uncertainty of the Ohio law for paying the miners.

It will be observed in Fig. 1 that these chutes are on a rather flat slope, permitting an easy flow of coal to the weigh basket. The weight of each dump is recorded in the weighhouse, in which two 8-ton tipple scales are located.

Feeders Are Employed

The coal is then delivered to the feeder hoppers, from which it is uniformly fed by chain and apron feeders to two Marcus horizontal patent picking-table screens. These screens are approximately 45 ft. long and each is capable of handling run-of-mine coal at the rate of 200 tons per hour, which easily permits of a total daily capacity of 2,500 tons, with liberal allowance for interruptions.

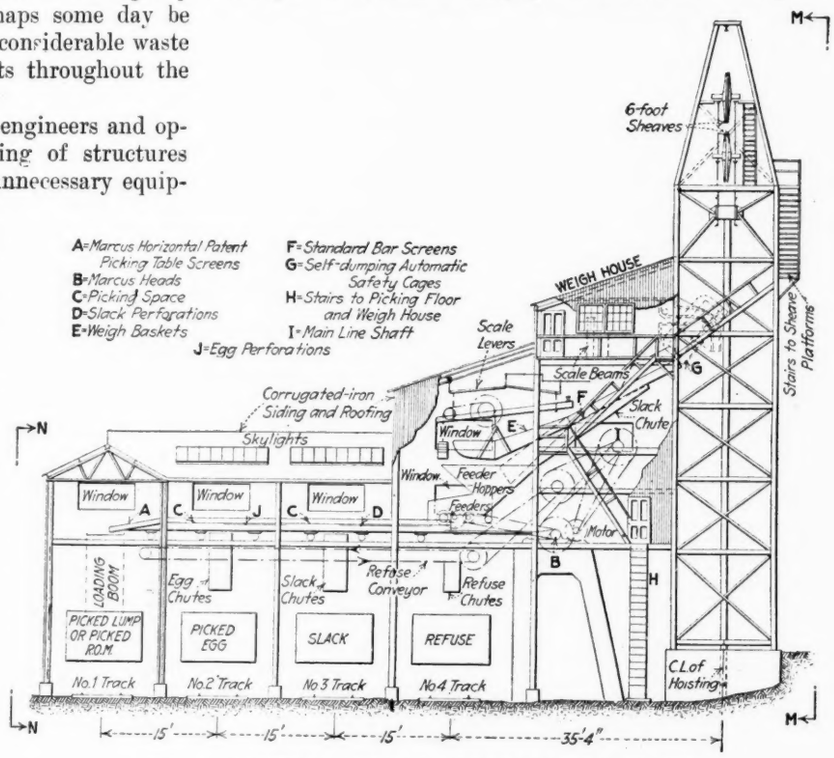


FIG. 1. GENERAL VIEW OF PREPARATION PLANT

At the delivery end of these Marcus screens there is a loading boom for discharging picked lump or picked run-of-mine coal carefully and without breakage into railroad cars on track No. 1.

Guard rails along the sides of the Marcus screens at the picking spaces allow the pickers to stand close, without danger, and thoroughly clean the coal.

The picked egg and the slack flow to cars on tracks No. 2 and No. 3 respectively by way of chutes *B*, Fig. 2. If it is so desired, gates *C*, Fig. 1, on the Marcus screens may be closed and the slack coal will be mixed with picked egg. Also if gates *D* are closed, this mixture will proceed along the bottom decks and be delivered to the loading boom simultaneously with the picked lump, picked run-of-mine resulting, and it will be loaded as such on track No. 1.

*Chicago, Ill.

[1]Issues of Nov. 6, 1915, p. 742, and Nov. 13, 1915, p. 790.

It was necessary to make provision for the inspection of coal and the docking of miners when they load dirty material. For this reason chain and apron feeders were adopted, as they deliver the entire contents from the feeder hoppers after each dump. This is essential because fair docking is only possible when all the coal of each dump remains separate from that of the previous or following dumps.

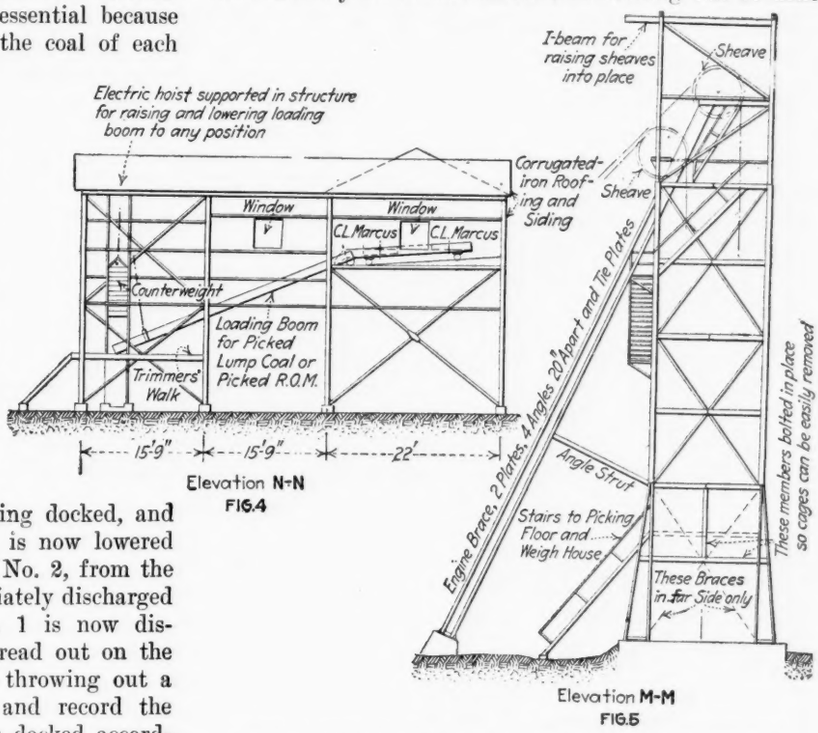
A unique feature and one of great value in the operation of this plant is the manner in which docking is done, because it permits of continuous hoisting.

When the man in the weighhouse detects a car of dirty coal, he signals the foreman in the screening room, and the feeder to the Marcus on the side of the tipple where this car has been hoisted is stopped, while the coal already on this screen proceeds to clear it, ready to receive the car of coal to be docked.

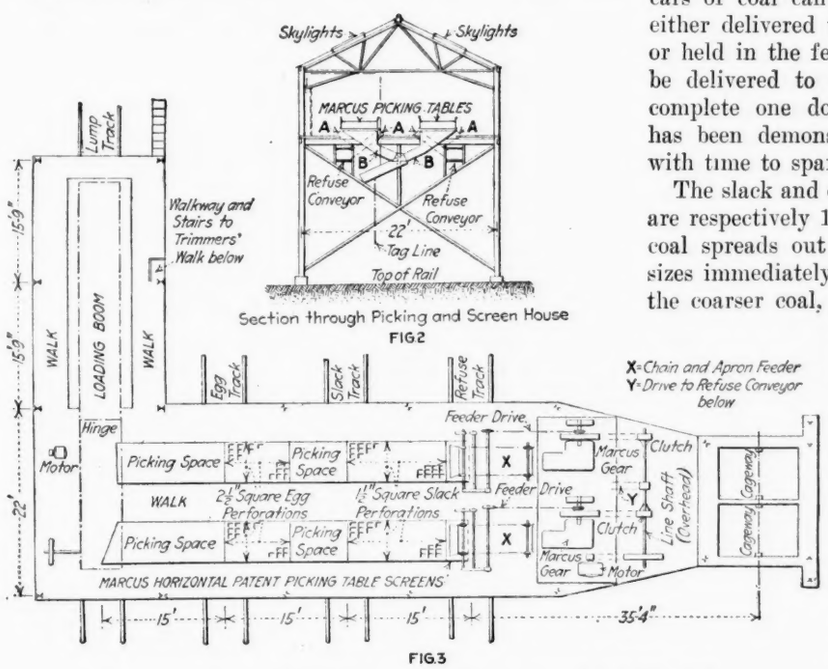
This car of coal, Fig. 3, which is being docked, and which will be designated as car No. 1, is now lowered into the empty feeder hopper, while car No. 2, from the opposite cage, is dumped into and immediately discharged from the opposite weighpan. Car No. 1 is now discharged from the feeder hopper and spread out on the first Marcus, which is then stopped by throwing out a friction clutch. Pickers then remove and record the weight of the pickings and the miner is docked accordingly.

While this docking is being done, car No. 3 has been dumped, weighed and delivered to the feeder hopper from which car No. 1 was dumped, where it is temporarily held. Then car No. 4 from the opposite cage is delivered to the second Marcus, while car No. 5 is dumped and weighed, but held in the first weighpan. Car No. 6 is now delivered from the opposite cage to the second Marcus.

It is of especial interest to notice from this explanation that any reasonable amount of docking can be done in this plant because of the duplicate equipment, as six cars of coal can be hoisted, dumped and weighed, and either delivered to the railroad cars over No. 2 Marcus or held in the feeder hopper and weigh hopper ready to be delivered to the No. 1 machine, while the pickers complete one docking operation. From actual test it has been demonstrated that this docking can be done with time to spare.



FIGS. 4 AND 5. RIGHT AND LEFT END VIEWS OF PREPARATION PLANT



FIGS. 2 AND 3. SECTION AND GROUND PLAN OF TIPPLE

The slack and egg perforations on these Marcus screens are respectively 1½-in. and 2½-in. square holes. As the coal spreads out and travels over the screens the finer sizes immediately disappear through the slack holes, and the coarser coal, which requires cleaning, is more easily seen and the refuse quickly removed, first from the egg, after which this size disappears through the egg perforations, and the lump coal may be further cleaned if desired.

The simple arrangement of the machinery in the picking room is indicated in Fig. 3. A motor is provided for driving the loading boom and an electric hoist for raising and lowering it into and out of the cars. Fig. 4 shows the arrangement of the boom house with the trimmers' walk.

The screening and picking machinery is driven by a motor through a line shaft equipped with clutches for convenience in stopping parts of the machinery while changing cars.

The Marcus driving heads are carried on a simple independent concrete frame. This serves to absorb all

vibrations, so that the tipple structure is built much lighter and yet is free from the racking usually present in the best-designed steel or timber frames which are used to carry the inclined type of shaker screen. The Marcus screens themselves impart no vibration to the structure which carries them.

The picking room is well lighted by skylights and sliding windows, and there is ample room for the pickers to work with ease. Walks, stairs and crossovers are conveniently arranged for free inspection of all the machinery throughout the plant. One can enter from the ground level at one side and easily get to the picking room, weighroom and hoisting sheaves. The tower is much simpler than types previously used, as Fig. 5 shows. The single built-up engine brace is more economical than the older forms which were made with wide-spreading legs tied to the main tower by numerous members.

This plant is one of interest, as it represents the best practice in tipple design. The type of screen employed makes possible the slogan, "Simplicity First," and is doubtless one of the best devices yet applied to American coal preparation.

Extracts from a Superintendent's Diary

The world is full of people who know exactly what is wrong with it, and yet somehow year after year things drift along and they are not given opportunity to straighten them out in spite of all their protesting, and so one by one they lose faith in mankind; but strange to say there is always a new prophet ready to take up the work of a neglected one, as he drops out. A mining community being part of the world under discussion and being possessed of many things that are out of kilter, likewise numbers among its citizens some who are sure that they could adjust matters to the satisfaction of all were they only given the opportunity.

Rarely a month passes that I do not receive a letter or letters of application from some misguided genius or geniuses offering to show me the way out of all of our troubles for a merely nominal sum; and sometimes even the suggestion is made that the thing might be done gratis for the benefit of mankind if I will only promise to so arrange matters that the said benefactor would receive the credit for his suggestions.

These self-appointed Moseses take it upon themselves to include in their suggestions everything from the so-called "current unrest" to the misnamed "acts of God," including explosions and fires. They introduce themselves by means of lengthy epistles that are filled with pleading and threats all jumbled together. Such letters are generally followed up by requests for personal interviews, and woe to the man who attempts to dismiss one of these saviors of mankind without a hearing. I was foolish enough to try it once a very long time ago—not so long, however, but that I remember distinctly the unpleasantness that followed.

But in spite of all the adventures and experiences that have fallen to my lot because of contact with such misguided individuals I was taken by surprise today by a genius who came into camp and fairly out-talked me, "hands down" as the boys would say. He had all the statistics covering gas and dust explosions, mine fires, falls of rock, etc., at his fingers' tips and discussed them most interestingly, and he seemed entirely familiar with our accident record. Then he switched the topic of conversation to the labor question and discussed every phase of it from open shop to unionism, and here again let it be known that he was posted as to our practice. Next, capitalism came up for discussion, and from that we drifted into conservation of national resources. Then I began to realize that I had given the visitor about as much of my time as I could well spare, entertaining though he was, and undertook to end the interview.

I had a surprise in store—it was all wrong, our system and the system of all of the other mining companies, and it all must be changed. Not only was our system wrong and the system of all the other mining companies, but our ideals and their ideals as well, and they too must be changed; from an interesting rational being he suddenly changed to an extremist of the last order. If I would only promise to put him in command for a while, he would show me how to overcome all accidents, all misunderstandings; they were uncalled for, and their very existence was nothing short of criminal. Time and again I tried to put in a word edgewise, but each time gave up in despair; and finally I realized the absolute futility of trying to "sprag" his line of talk, so I let him carry it through to a conclusion. When he finally took it upon himself to call the matter off, I was completely exhausted.

And now that I recall the adventure, I can but think of the pity of it all; he was such an enthusiast and might easily have swayed multitudes.

Fatal Accidents Cut in Two

The number of fatal accidents in Alabama coal mines during the past year was reduced exactly 50 per cent. There were 63 fatal accidents in 1915, as compared with 126 in 1914. This reduction is to a large extent owing to the safety work being done by the State Mining Department, and much credit is due Chief Mine Inspector Nesbitt and his staff of assistants for the remarkable showing made during the past year. The result of the work done by the Alabama Safety Association also has aided in reducing the number of accidents to a considerable extent, and even better results are looked for in 1916.

The causes of fatal accidents in both 1914 and 1915, with the percentage of each, are as follows:

	1915		1914	
	No.	Per Cent.	No.	Per Cent.
Falls of rock	20	31.75	53	42.80
Falls of coal	3	4.76	1	0.70
Tramcars	12	19.05	22	17.40
Gas	7	11.11	34	26.90
Powder	4	6.34	1	0.70
Electricity	8	12.70	11	8.70
Motors	4	6.34	1	0.70
Shaft	1	1.59	..	....
Suffocation	1	1.59	..	....
Outside slate cars	2	3.18	2	1.40
Machinery	1	1.59	1	0.70
Total	63	100.00	126	100.00

Erratum: Anthracite Section A. I. M. E.—In our Dec. 11 issue, page 976, it was stated that the Harwood Coal Co. was mining mammoth coal, the system being introduced by H. M. Crankshaw. This is incorrect. The Harwood Coal Co. is not mining mammoth coal, and the system described by Mr. Crankshaw was introduced by him at the Lansford colliery of the Lehigh Coal and Navigation Co.

Analyzing Flue Gases

As the analysis of flue gases tends to develop better methods of firing, which in turn reduces waste of fuel, the Bureau of Mines, Department of the Interior, in Bulletin 97, "Sampling and Analyzing Flue Gases," by Henry Kreisinger, engineer, and F. K. Ovitz, assistant chemist, just issued, presents for the benefit of those in charge of boiler plants and all other persons interested detailed information on methods of sampling and analyzing flue gases and on the utilization of the analyses in promoting boiler-room economy.

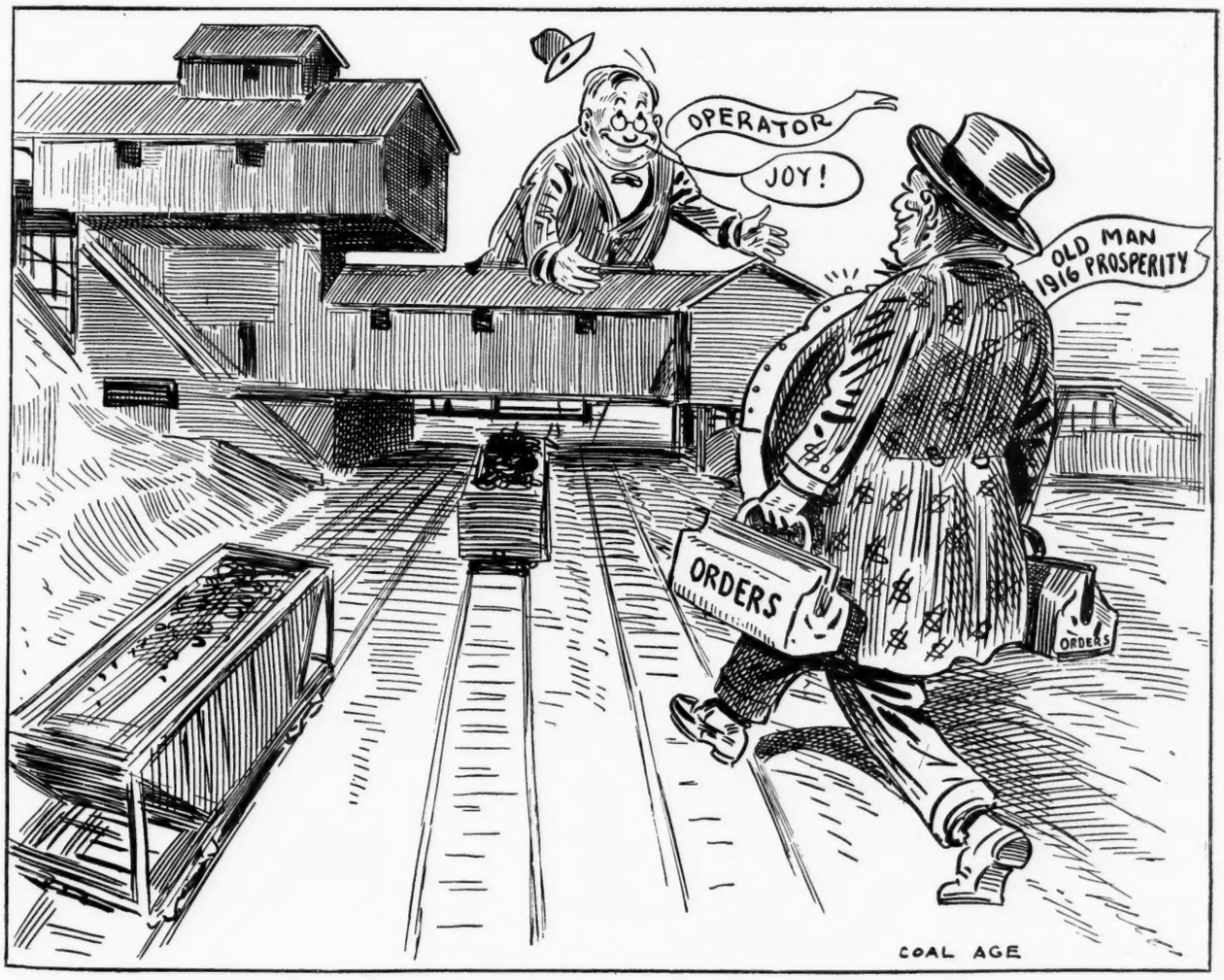
This bulletin is intended to be a companion to Technical Paper 80, "Hand-Firing Soft Coal Under Power Plant Boilers," and is written in plain and nontechnical language, as far as possible, so that it may be readily understood by persons who have not had the advantage of a technical education. Whenever possible, illustrations of apparatus and methods of handling have been used rather than elaborate descriptions.

The material presented in this report is arranged in two parts. The first part contains the description of the apparatus and the methods used in sampling and analyzing flue gases. The second part gives experimental results obtained with the different methods of sampling and collecting flue gas that are recommended in the first part of the report.

Only simple apparatus and methods are considered, as they are accurate enough to show the large heat losses due to the use of too much air, and are also accurate enough to indicate any incomplete combustion losses of economic importance. Without doubt the loss due to large excess of air is the greatest one in the boiler room and can usually be greatly reduced by making proper use of gas analysis.

Before engineers in the isolated industrial plants can be induced to analyze for small traces of combustible gases they must be first taught how to analyze for carbon dioxide, and they must learn to appreciate the great possibilities of reducing loss from large excess of air. Furthermore, in the face of the great difficulty of obtaining a fair average sample, it is doubtful whether more delicate apparatus for analysis and more refined methods would be of much advantage.

Those who wish to obtain information on the more accurate methods of analysis of gases are referred to Bureau of Mines Bulletin 12, "Apparatus and Methods for the Sampling and Analysis of Furnace Gases," and Technical Paper 31, "Apparatus for the Exact Analysis of Flue Gas," which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a cost of 5c. each. Bulletin 97 may be obtained by addressing the Director of the Bureau of Mines, Washington, D. C.

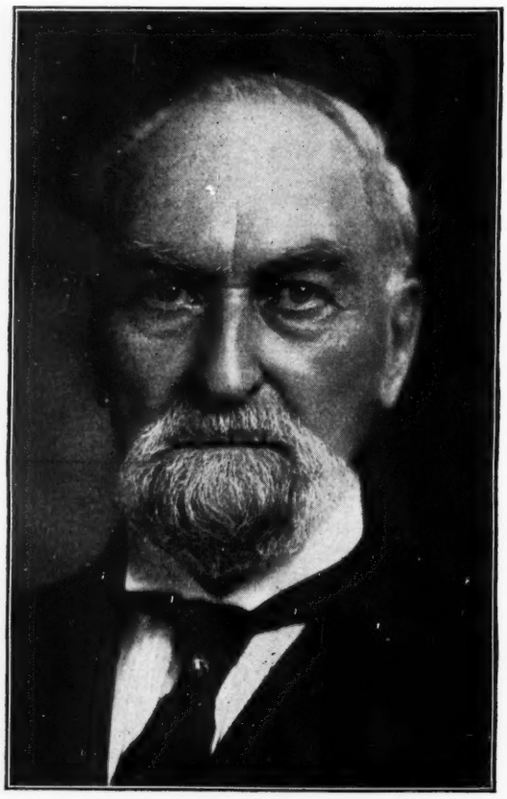


WELCOME HOME AFTER ALL THESE YEARS OF ABSENCE

John Fulton

John Fulton, of Johnstown, Penn., father of the coking business in America, died on Thursday, evening, Jan. 20. Mr. Fulton was in his 90th year, and his death was due to general debility. His health became impaired some months ago, but he was able to be out until Thanksgiving Day. About two weeks and a half ago he took to his bed, and on Jan. 19 lapsed into unconsciousness. He is survived by two daughters, Miss Nannie West Fulton, who lived at home, and Mrs. J. D. Lignon, of Washington, D. C.; also by a brother, Thomas Fulton, who lived at the home of the deceased.

Mr. Fulton was born in Drumard Cross, County Tyrone, Ulster, Ireland, Oct. 16, 1826. His ancestors were



JOHN FULTON
Generally known as the "Daddy" of the American coke industry

Scotch, but emigrated to Ulster during the movement to people the Province of Ulster with Scotch and English. His youth was spent on the farm of his father, and his elementary education was obtained at McKenna's School. After a short term at the Ardtrea Classical School, he attended the Erasmus Smith High School in Dungannon. During 1846 and 1847 he was employed on the location and construction of the Great Western R.R. from Dublin to Galway.

In the fall of 1848 Mr. Fulton's father, the Rev. Thomas Fulton, emigrated to America with his family of six sons and one daughter, and John Fulton began his professional career by superintending the completion of the old North Branch Canal, Pennsylvania, which work lasted until 1852. From 1852 to 1854 he was assistant engineer in the construction of the Junction Canal, uniting the Pennsylvania Canal with the New York, or Chemung, Canal. In 1856 he was appointed resident and mining engineer for the Huntingdon & Broad Top R.R., which was at that time opening up the Broad Top coal field.

During 1872 to 1873 Mr. Fulton was chief engineer of the Bedford & Bridgeport R.R. In 1875 he was made general mining engineer of the Cambria Iron Co., having charge of all the coal and iron mines in Pennsylvania and Michigan. In 1887 he was made general superintendent of the company, and the following year general manager. During these 17 years of service with the Cambria Iron Co. he enjoyed the full confidence of Mr. Morrell and of E. T. Townsend, the president.

He later resumed his practice of civil and mining engineering, being largely employed by A. J. Moxham in visiting and reporting on iron ores, coal and coke in different parts of this country and Canada.

Recent Legal Decisions

West Virginia Compensation Act Valid—Failure of the employer of an inexperienced coal miner to warn him of the danger incident to the taking of a stick of dynamite with an ignited fuse attached from a drill hole almost immediately after discovery of lack of scintillation by the fuse is not negligence and the employer is not liable for an injury occasioned by such an act. Neither the statute nor the common law requires a master to instruct a servant as to dangers of which the latter has knowledge or as to means of avoidance fully known to him. The statutory requirement proceeds upon the theory of lack of knowledge in the employee, for it applies only to inexperienced miners. The common law imposes no duty to instruct a servant of full age and average intelligence as to elements of danger that are obvious to persons of his class. (West Virginia Supreme Court of Appeals, De Francesco vs. Piney Mining Co., 86 Southeastern Reporter, 777.)

Scope of Alabama Mine Laws.—The manifest purpose of the Alabama act of April 18, 1911, which regulates mining operations, being to reduce to a minimum the dangers incident to the hazardous occupation of mining coal, its provisions must be applied not only for the benefit of ordinary employees, but for the protection of all persons engaged in working in the mines, whether under contract as employee or as independent contractor. "It is a matter of serious doubt whether a workman in a coal mine can assume the risk incident to a noncompliance with the statute, even by special contract supported by sufficient consideration, and whether such contract would be void as contravening the public policy of the state, but it is clear that, in the absence of such contract, the risk is not assumed by continuing at the work, even in violation of rules promulgated by the mine owner in evasion of the statute." (Alabama Court of Appeals, Harris vs. Stith Coal Co., 68 Southern Reporter, 797.)

COMING MEETINGS

American Concrete Institute will hold its annual meeting in Chicago, Ill., Feb. 14-17, 1916.

Southern Appalachian Coal Operators' Association will hold its next meeting at Nashville, Tenn., Feb. 8, 1916. Secretary, J. E. McCoy, Knoxville, Tenn.

American Society of Mechanical Engineers will hold its spring meeting at New Orleans, La., Apr. 11-14, 1916. Secretary, Calvin W. Rice, 29 W. 39th St., New York City.

Engineers' Society of Western Pennsylvania will hold the annual meeting of its metallurgical and mining section on Tuesday, Jan. 25, 1916. Secretary, Elmer K. Hiles, Pittsburgh, Penn.

Engineers Society of Northeastern Pennsylvania will hold its 19th annual dinner at the Hotel Jermyn, Scranton, Penn., Thursday evening, Feb. 10, 1916. Secretary, T. F. McKenna, Scranton, Penn.

Canadian Mining Institute will hold its 18th annual meeting at Ottawa, Canada, Wednesday, Thursday and Friday, Mar. 1-3, 1916. Business sessions will be held on the first two days, and the annual dinner will take place on Thursday evening. On Friday a series of excursions will be arranged to points of interest in Ottawa, including the Mint, the Victoria Museum and the government ore-testing laboratory and fuel-testing station. Secretary, Mortimer H. Lamb, Montreal, Que., Can.

Byproduct Coking Installation in Great Britain

By Frederick C. Coleman*

SYNOPSIS—A recent installation in the north of England, with annual capacity of 160,000 tons. The byproducts secured consist of gas, tar, sulphate of ammonia and benzol.

At one of the oldest collieries in the north of England coal field an interesting installation of 60 Koppers regenerative coke ovens, with complete apparatus for the recovery of tar, ammonia and benzol, has recently been put into successful operation. This is illustrated in the accompanying drawings and photographs.

In the general arrangement it will be seen that the coal is conveyed from the colliery to the washery and is there washed and crushed to a size suitable for coking purposes. It is then conveyed by a bucket elevator to a reinforced-concrete bunker of 1,000 tons' capacity. This bunker is divided into 12 hoppers, three in a row, corresponding to three hoppers of a charging machine.

Shotton coal contains about 30 per cent. of volatile matter. This coal is not compressed, but is charged into the ovens from the top by means of an electrically operated larry traveling along the top of the ovens on rails. This larry is provided with three hoppers, and each oven is charged at three different points. When the coal has been discharged into the ovens, it is leveled by a beam carried on a machine traveling along the front of the ovens. This machine also carries a ram for discharging the coke.

A somewhat unusual arrangement is adopted for dealing with the coke. As it is discharged from the ovens it passes through a Darby type of quencher. It is then guided by an antibraker into a coke car, where it is quenched and subsequently conveyed to the coke screening and loading station.

The coke car is in two sections, each capable of taking the charge of one oven. The car travels in front of the battery, and it is propelled by means of an endless rope and motor-driven haulage gear to the screening and loading station. By the operation of a wheel, the gates are lifted, and the coke slides from the car onto the inclined coke screen. The dust and breeze pass through the bars, and the coke remains at the bottom of the screen, whence it is discharged onto a belt arranged for loading direct into railway cars. There is accommodation for the storage of about 2,000 tons of coke.

The ovens are each approximately 32 ft. 10 in. long, 8 ft. high and 20 in. in mean width. Each oven is heated by vertical flues at about 60 points so as to secure even heating. The air for combustion is preheated to a temperature of about 1,000 deg. C. (1,832 deg. F.), giving considerable economy in the amount of gas used for heating purposes, and there is surplus gas, equivalent to about 60 per cent. of the total, available for external purposes.

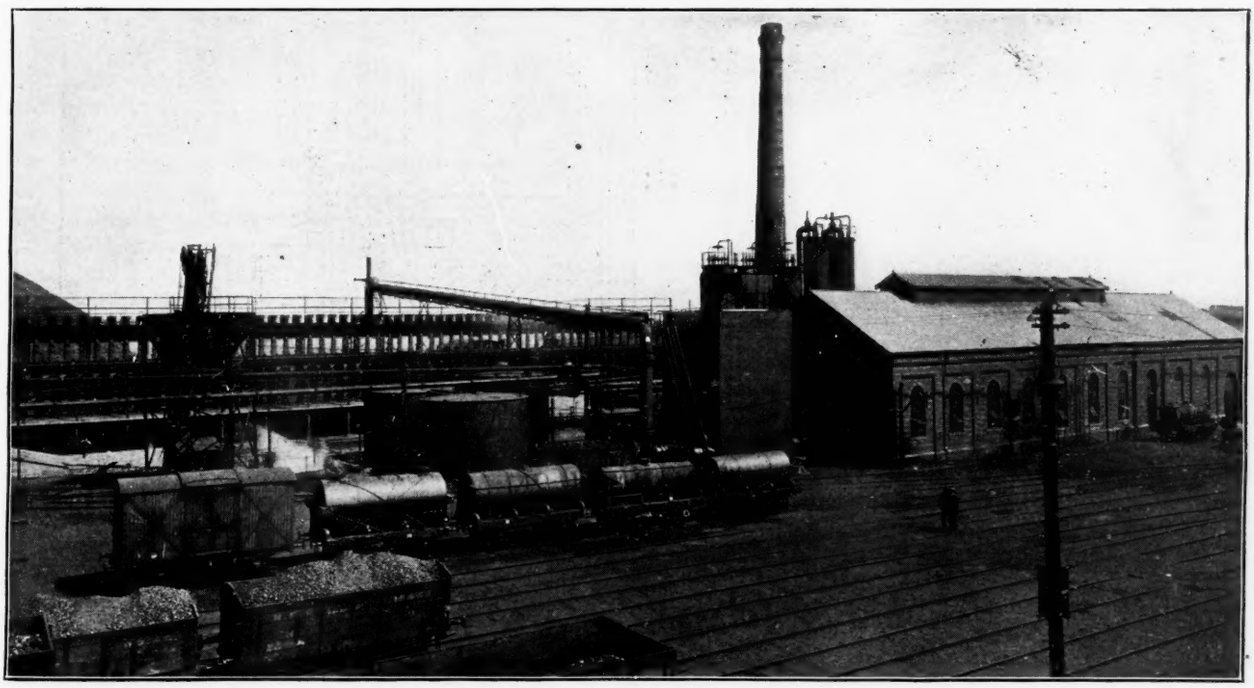


FIG. 1. GENERAL VIEW OF A KOPPERS OVEN PLANT IN NORTH OF ENGLAND

The efficiency of the means provided for regeneration may be judged from the fact that the waste gas passes to the chimney at a temperature under 250 deg. C. (482 deg. F.). In explanation of the drawing it may be remarked that the hot gas direct from the ovens enters the coolers, where its temperature is reduced to about 25 deg. C. The gas is then drawn off by an exhauster, by which it is delivered to the tar extractor. After hav-

*Newcastle-on-Tyne, England.

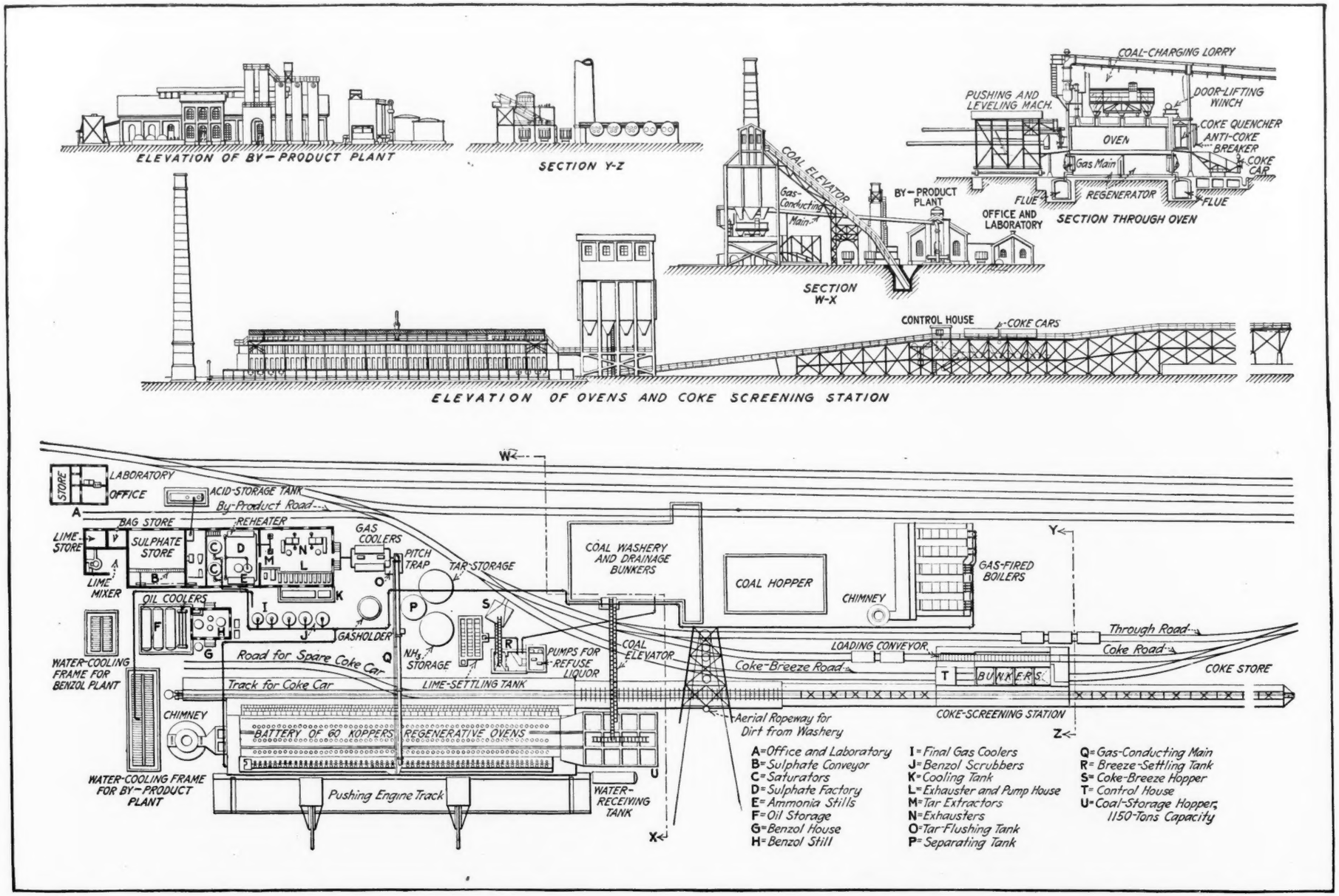


FIG. 2. GENERAL ARRANGEMENT OF OVEN AND BYPRODUCT RECOVERY PLANT

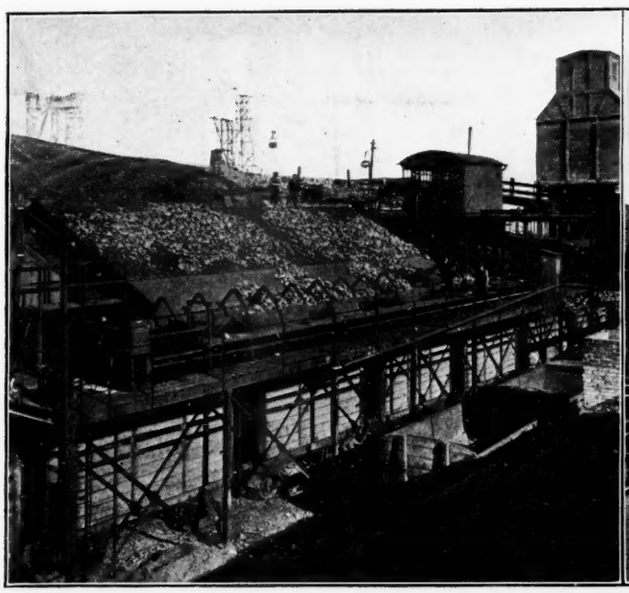


FIG. 3. VIEW OF THE COKE SCREENS

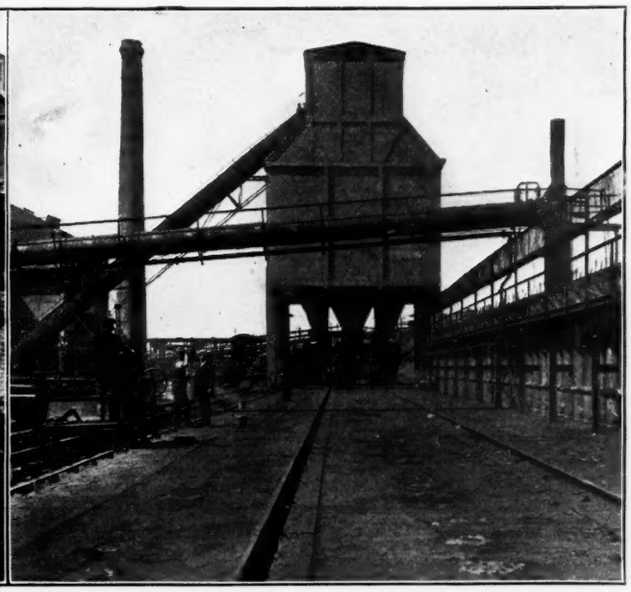


FIG. 4. A VIEW ON TOP OF THE OVENS

ing been freed from the tar, the gas is then led into a reheater, where it is heated up to the required temperature.

The heated gas is then conducted through a main to the saturator, in which the ammonia is extracted by direct absorption in sulphuric acid and is recovered in the form of sulphate. The saturator is of the totally inclosed type, and the sulphate is continuously removed by means of an ejector working either with steam or compressed air. The salt is delivered onto a collecting table, and passes thence into a centrifugal drier, where it is completely freed from the mother liquor. The products of condensation which are extracted in the cooling and tar-eliminating operations are drawn off from the condensers, tar extractors, etc., and are conveyed into a separating tank, where the tar and ammoniacal liqour separate owing to their differing densities.

The tar flows into one storage tank and the liquor into another. The liquor is pumped into an ammonia still, where the ammonia is driven off by steam and lime in the usual manner. The vapors of distillation are conducted from the still and delivered into the main, where they mix with the heated gas, and the whole then passes into the saturator.

No live steam is required in the Koppers process, either for distilling the liquor to liberate the ammonia or to reheat the gas after cooling and tar extraction. For both these purposes the exhaust steam from the engines driving the exhausters is more than sufficient. The gas passes out of the saturator through a main, by which it is conducted back again to the ovens and to other points where required.

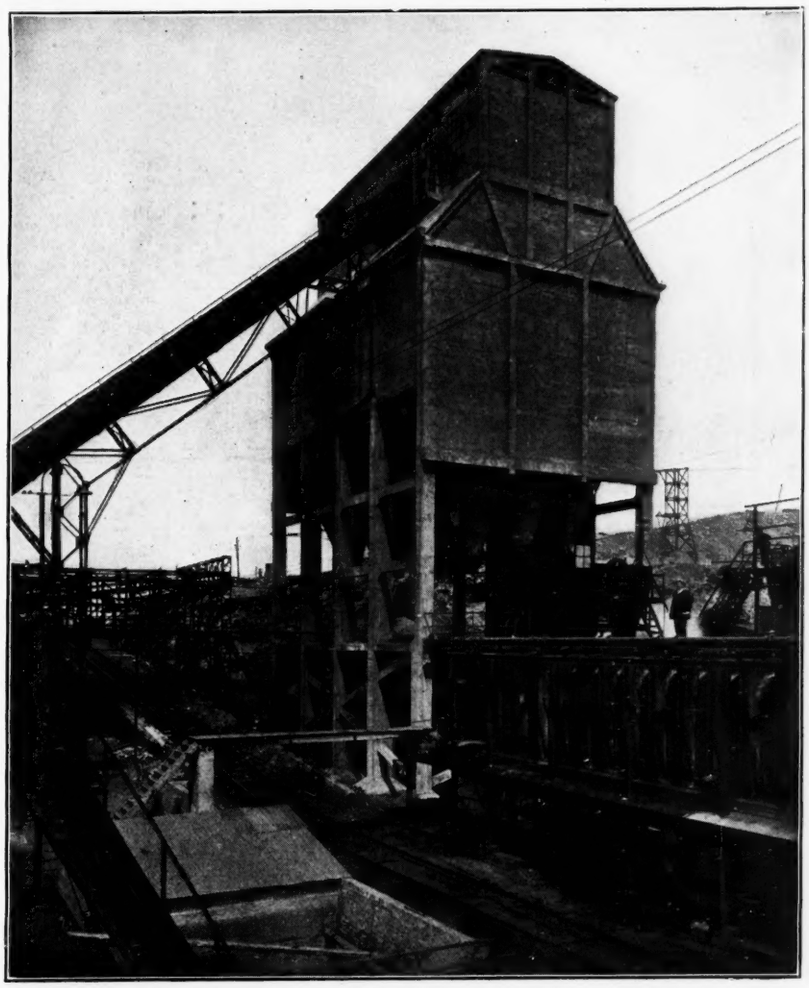


FIG. 5. COAL STORAGE BIN, WITH CHARGING LARRY UNDERNEATH

In those instances where benzol is required to be recovered it is necessary for the gas to be cooled down after leaving the saturator, after which it is subjected to the usual scrubbing operations. The liquor condensed

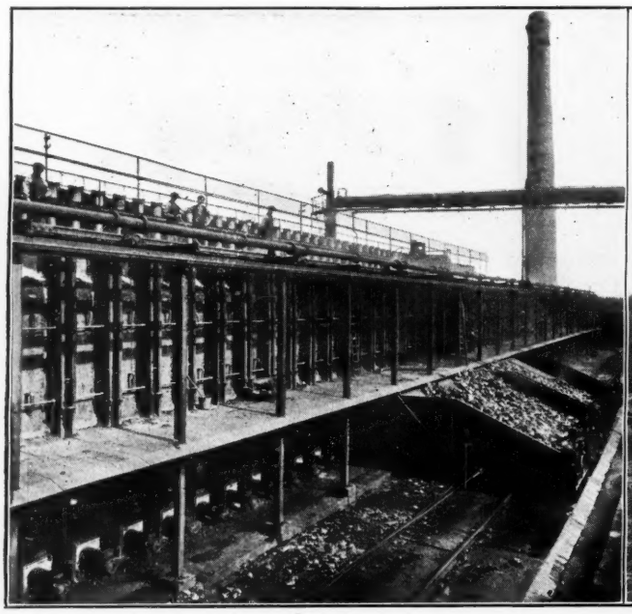


FIG. 6. FRONT OF OVENS, SHOWING TWIN COKE CARS

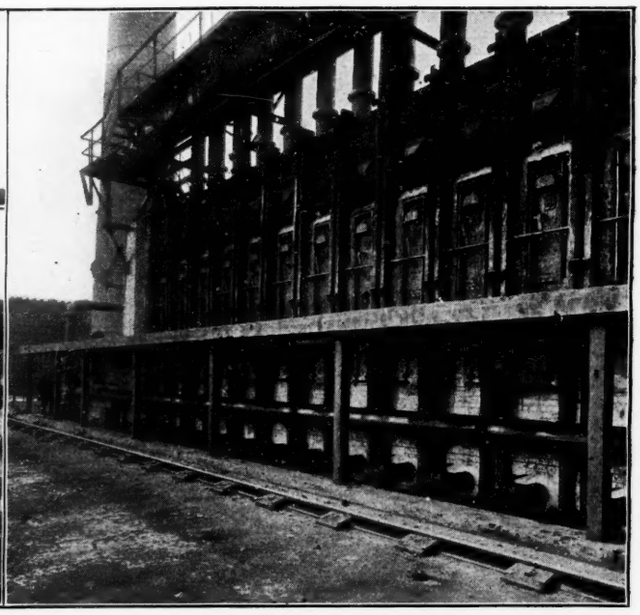


FIG. 7. NEAR VIEW OF OVENS FROM THE PUSHER SIDE

FIG. 8. NEAR VIEW OF TWIN COKE CARS

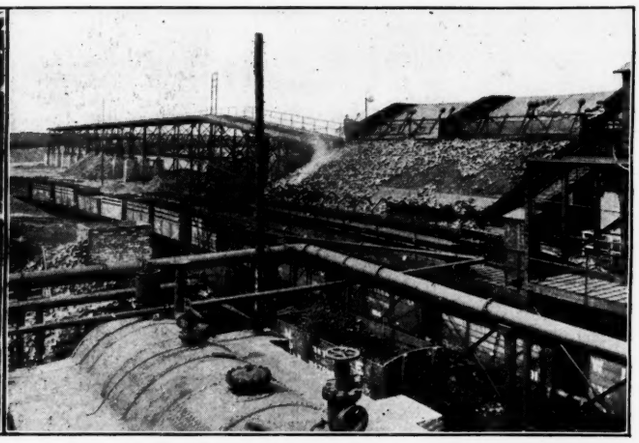


FIG. 9. COKE SCREENS AND LOADING BELT

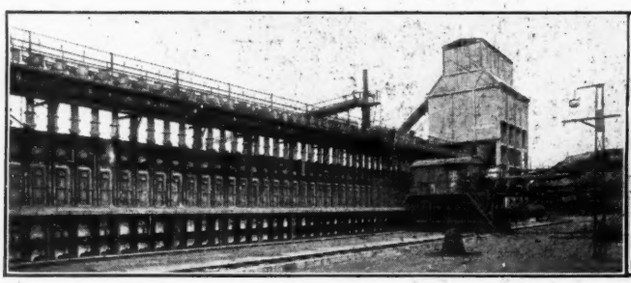


FIG. 10. THE OVENS AND COAL BIN

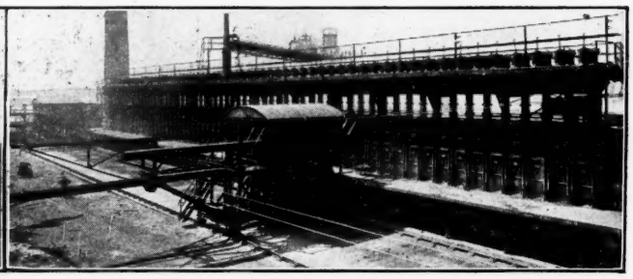


FIG. 11. COKE PUSHER AND COAL LEVELER

earlier in this process is distilled with milk of lime, and the ammonia evolved is led into the gas main, and so passes with the gas into the saturator. The gas then passes to the final coolers, where the temperature is reduced to that required for the efficient extraction of benzol—namely, 15 to 20 deg. C.

The benzol is extracted by means of creosote oil, which passes down three tower scrubbers in series filled with boards. Its direction is counter to that of the gas. After passing through a holder the gas is returned to heat the ovens. The rich oil after benzol extraction flows to a tank, whence it is pumped to the benzol house, where the benzol is recovered by distillation.

The oil, after passing through a heat exchanger, where it extracts heat from the benzol vapors, enters a superheater, where its temperature is raised to 135 deg. C. by means of steam. From the superheater it flows to the still, and the distillation is then completed by means of live steam. After passing through a baffle-plate cooler, as well as three additional coolers of the Woolf type, it enters a storage tank, and is then circulated once again through the scrubbers.

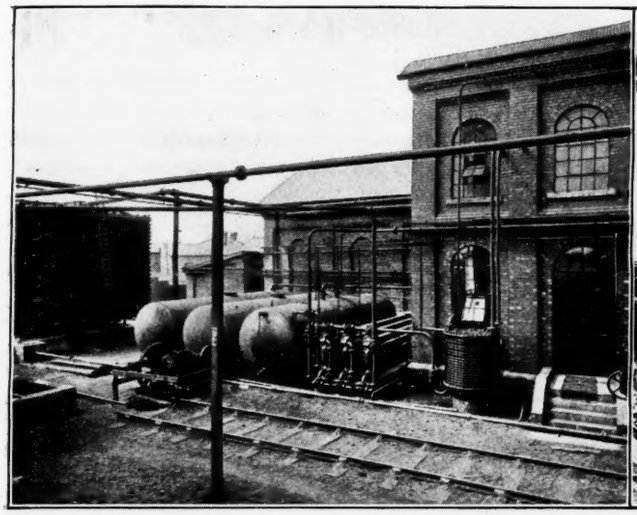


FIG. 12. BENZOL HOUSE AND STORAGE TANKS

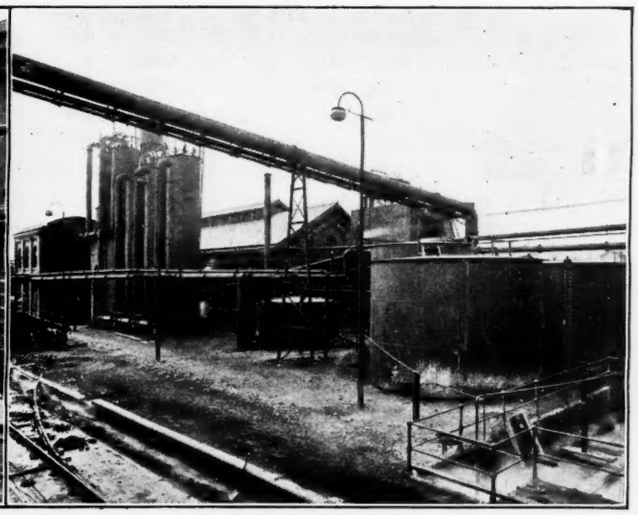


FIG. 13. GAS MAIN, HOLDERS, STORAGE TANKS, ETC.

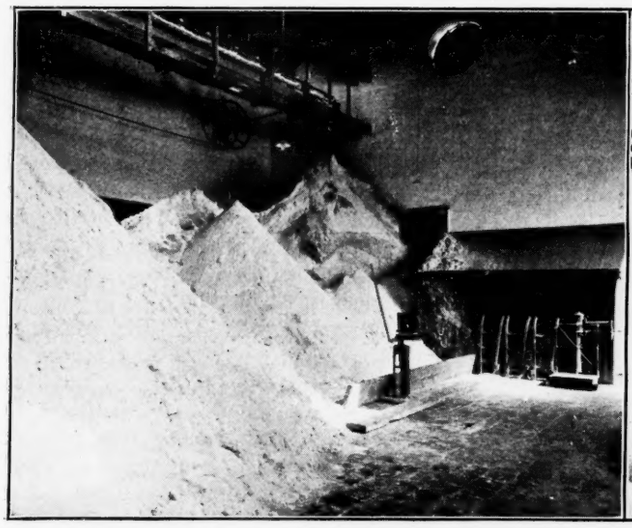


FIG. 14. AMMONIUM SULPHATE IN STORAGE

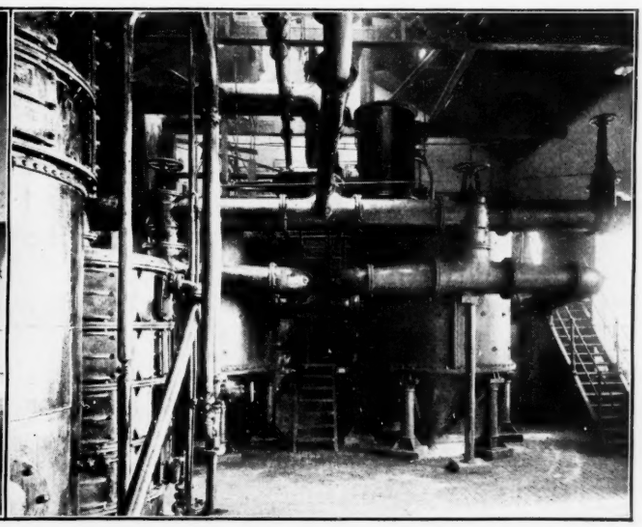


FIG. 15. INTERIOR OF SULPHATE FACTORY

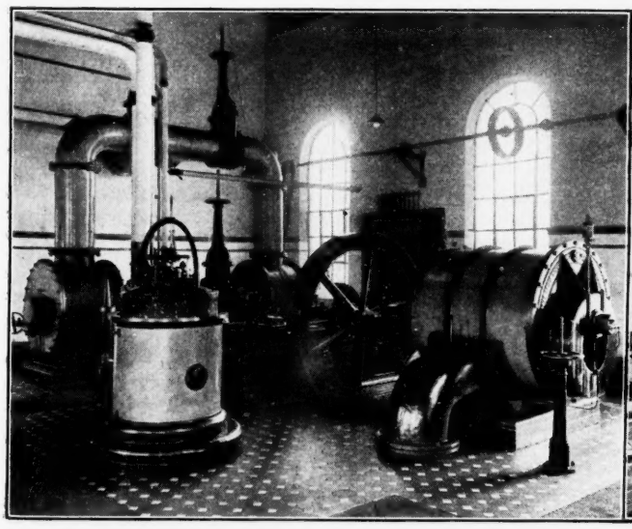


FIG. 16. EXHAUSTERS AND TAR EXTRACTORS

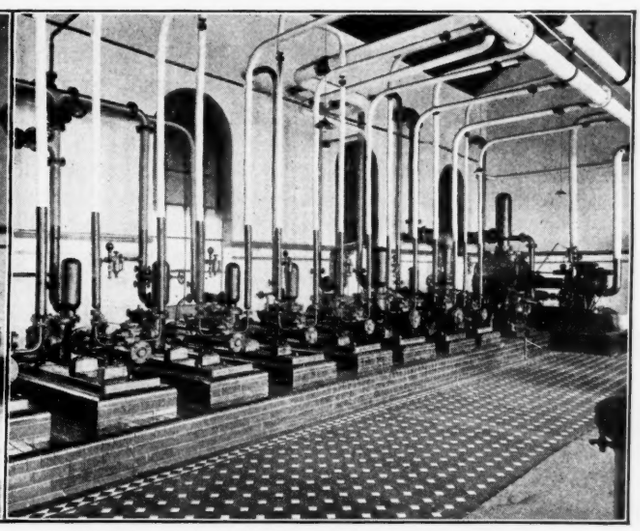


FIG. 17. TAR, OIL AND WATER PUMPS

Two other tanks are provided for the storage of the crude benzol. The creosote oil storage tank is divided into two compartments—one for the storage of the debenzolized oil and the other for the storage of fresh oil. A cooling tower is also provided for the cooling of the water used around the plant. This is capable of treating 35,000 gal. in 24 hr. and of reducing the temperature to that of the atmosphere.

This battery of 60 ovens has a capacity of 160,000 tons of coal per annum. The coke produced is about 70 per cent. by weight of the coal used, and is low in phosphorous, sulphur and ash, besides being of excellent quality and of good physical structure. The average yields are 70 per cent. coke, 5 per cent. tar, 1.3 per cent. sulphate of ammonia and 2 gal. of benzol.

There is approximately 50 per cent. of surplus gas, or 6,000 cu.ft. per ton of coal, of a calorific value of 500 B.t.u. after extraction of the benzol. The gas at Shotton is used under a battery of boilers in burners of the Altenhein and Wilson design.

The illustrations are sufficiently self-explanatory as to render unnecessary anything further in the way of description. It only remains to be said that this scheme was carried out to the requirements of J. J. Prest, of Castle Eden, County Durham, the agent of the whole group of the Horden collieries in the Durham coal field and one of the best-known mining engineers in Britain.

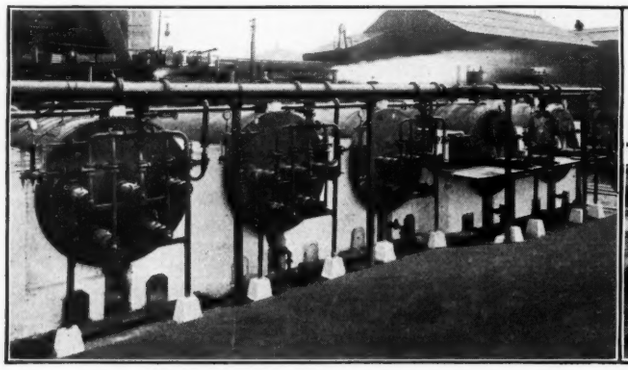


FIG. 18. SOME OF THE GAS-FIRED BOILERS

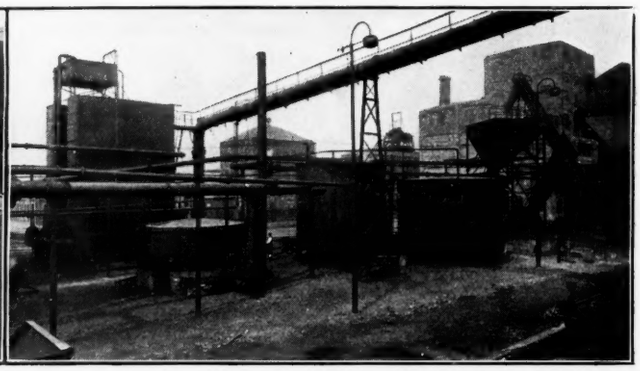


FIG. 19. PRELIMINARY GAS COOLER AND HOLDER

Lake Vessels Withdrawing from the Coal Trade

The urgent necessities of Lake shippers of iron ore have resulted in the sale of nearly 50 freighters that have been operated in the ore, grain and coal trades. These sales represent an aggregate of from $12,000,000 to $15,000,000 and leave without vessel property many of those who have been known as independent owners. The sales have been profitable to original owners, some of whom were paid as much as the first cost of their boats, and probably represent a profit to the buyers as well, from the fact that the cost of construction of a modern steel ship is now said to be 75 per cent. greater than 12 months ago. In addition to this there is the uncertainty of obtaining material from the steel mills to build boats, while the shipyards are already behind on work, so that delivery of carriers ordered now could not be made before 1917.

In the last week of December three large transactions were closed, involving 24 modern freighters ranging from 10,400 tons to 5,000 tons. The Interlake Steamship Co. purchased from the Cleveland Steamship Co. 13 steamers at a cost of about $3,000,000. Their addition to those previously under the management of Pickands, Mather & Co., Cleveland, creates a fleet of 50 steamers and 2 barges, with season carrying capacity aggregating 7,000,000 tons. The fleet, in number of vessels and tonnage, is second only to that of the Pittsburgh Steamship Co., which handles the transportation business of the United States Steel Corporation on the Lakes.

The fleet of the Pittsburgh Steamship Co. is increased by the addition of six modern freighters, which J. C. Wallace, as agent, purchased from the Acme Steamship Co. Dec. 23. The same company has three 12,000-ton, 600-ft. steel ships under construction in Lake yards, two at Lorain and one at Ecorse. With their completion this season, it will have 81 steamers and 21 barges. The six vessels bought are valued at $1,200,000.

In another recent deal Capt. W. C. Richardson, of Cleveland, with Oglebay, Norton & Co. and others, acquired five modern steel freighters. Two were purchased from companies managed by the G. A. Tomlinson Co. and one from the Michigan Steamship Co., one from the Wolverine Steamship Co. and one from the Wainwright Steamship Co., the cost aggregating $1,400,000. With the addition of these boats, the Richardson fleet comprises 16 steamers with season carrying capacity of 2,250,000 tons.

As many of the steamers sold have been carrying coal in previous seasons and this year will be operated in the ore trade, in a number of instances, making the upbound trips without cargo to gain time, the tonnage that will be available for moving coal will be greatly reduced in 1916. Some of the coal shippers, including the Valley Camp Coal Co., have recently purchased vessels.

An Important Event in the Coke Industry last year, according to the United States Geological Survey, was the completion of a number of large plants for the recovery of benzol from byproduct coke-oven gas. This gives the United States its first output of this material, so important as a raw material in the manufacture of high explosives and chemical dyes.

The Following Revised Atomic Weights are proposed by F. W. Clarke, T. E. Thorpe and G. Urbain of the International Committee on Atomic Weights. The weights formerly approved are given in brackets. Carbon (C), 12.005 [12.00]; helium (He), 4.00 [3.99]; normal lead (Pb), 207.20 [207.10]; lutecium (Lu), 175.0 [174.0]; praseodymium (Pr), 140.9 [140.6]; radium (Ra), 226.0 [226.4]; sulphur (S), 32.06 [32.07]; tin (Sn), 118.7 [119]; uranium (V), 238.2 [238.5]; ytterbium (Yb), 173.5 [172.0], and yttrium (Yt), 88.7 [89.0].

Scott Nearing's "Anthracite"

SYNOPSIS—Dr. Scott Nearing's book on "Anthracite" is written by a man who has studied records but has not viewed the actual situation, and being severely biased, his interpretation of the facts is entirely unreliable.

Probably the book by Dr. Scott Nearing entitled "Anthracite" will be regarded as the chief political publication on the coal trade of the year just commencing, marking it as clearly as the preceding was signalized by the publication of the report of the Industrial Relations Commission. And yet it must be conceded that the book is not likely to have a wide influence. If it is to be regarded as a campaign document in the anthracite controversy, it is somewhat ineptly put together, and that is why the publisher in a paster on the front cover requests that the reviewer will read the chapter entitled "Wages" which starts on page 97.

The author spends the early part of the book in an attack on monopoly and makes the statement that the owners of the anthracite coal fields are monopolists because they own the coal-bearing land. Dr. Nearing does not believe that there is anything particularly discreditable in owning land with coal on it. He is prepared afterward to admit that the ownership of land of all kinds, whether combustible or incombustible, is monopoly. So he starts by an attack on the private ownership of land, which is hardly the way to appeal to the people. The miner who owns a little plot of ground is classified ignominiously with the coal baron.

It is this ineptness repeated throughout the book, it is this lack of diplomacy, of which no newspaper man, for instance, would be guilty, that causes the reader to think that despite the conjunction of the appearance of the book and the opening of the wage dispute, they cannot be regarded as connected events.

Reader Harrowed by 1902 Conditions

Dr. Nearing has, moreover, not made a good case. No successful attack on the anthracite labor situation is possible without deliberate and purposed misrepresentation such as has been common in the past. The author of "Anthracite" recoils from such a course, and though he has misinformed the reader we believe that he is self-deceived. The book is the product of the midnight oil and not the result of work in the field.

Dr. Nearing chooses to take up the wage report made by the United States Census Bureau for 1902. He declares with some truth that it is the only report which is in any real sense adequate, but he admits that there has been a 21 per cent. increase in wage since that date and that steadier work has made a larger annual earning possible. However, he seems to "soft pedal" the fact that the scales in 1902 and 1916 afford a very different income to the wage earner.

He does refer, however, to the report of the Secretary of Internal Affairs of the State of Pennsylvania for 1912, and here again he chooses an unfortunate year and does not see fit to warn the readers of that fact. In that year the anthracite mines had a long suspension while the scale was being adjusted. The "Production of Coal in 1912," published by the United States Geological Survey, says: "The suspension was practically complete during the entire month of April and most of May. The modified agreement was signed on May 20 and operations were resumed at once. The total production for this month was only about 1,500,000 tons, or approximately one-fourth of the normal output."

Having taken this year to exhibit the lowness of wage in the anthracite compared with that in the bituminous regions, he goes on to explain that it is due to the fact that the work is not so regular in the anthracite regions, because in the former 206 days were worked and in the latter 268 days. He tries to show that the anthracite miner is placed at a disadvantage and for this he should be recompensed. As a matter of fact the anthracite region has an enviable reputation for regularity of operation made possible by the discount in prices in the spring whereby the operators surrender $5,000,000 that the consumer would pay if winter prices were maintained throughout the year.

Hard-Coal Mines Work More Regularly

The United States Geological Survey shows that from 1906 to 1914 the working time in the anthracite region averaged 288 and the bituminous mines only 214 days, and in 1914 the anthracite miners made an average of 245 days, while in the bituminous mines of Pennsylvania they averaged only 214 days. The statements made, therefore, by Dr. Nearing are untrue even though the Secretary of the Interior of the State of Pennsylvania vouches for them.

Dr. Scott Nearing's figures for the number of days worked in the anthracite and bituminous mines in 1912 are doubtless faulty. He says that the anthracite mines worked 206 days; the state mine report places the "run" at 220 days, and the United States Geological Survey reports 231 days. The difference between the state and federal reports is possibly due to the fact that the first is the arithmetic mean of the average working days of the various inspectorates. The average working days of these arbitrary divisions are probably determined by dividing the total number of colliery days worked by the number of collieries. In this way no reference is made to the size of a colliery. A small mine employing few men is regarded as being just as important in the determination as a large mine employing several men. On the other hand the United States Geological Survey figures are determined by a due consideration of the size of the operation. Hence the difference. Probably the figures of the Secretary of the Interior represent neither days of run nor days of work but a little of both. They seem utterly unreliable whatever they are.

Dr. Nearing says that the bituminous mines of Pennsylvania worked 268 days in 1912. The report of the Department of Mines of that state takes issue with him and gives 241 as the number of days worked, and the United States Geological Survey by duly balancing its figures in the approved manner according to the size of the mine makes it 252 days. In all cases the figures used by Nearing for 1912 show an undue partiality for the working conditions in the bituminous regions of Penn-

sylvania. The number of days worked in the two coal areas was far more nearly equal.

In 1899 the anthracite mines worked 173 days. It was not a particularly bad year, because the decade in which it is included contained one year in which 150 days were worked and the average for the 10 years was only 183 days per year. From the 173 days to 245 days is an increase of about 41 per cent. So it is clear that the miner is able to do better than in 1899. He has obtained a 33 per cent. increase in wage and a 41 per cent. increase in work, or a gross increase of about 88 per cent. This is a creditable increase, whatever Dr. Nearing may think.

If the reader wants to swallow all the worthy pedant's talk about calories, physical efficiency and standards, he may; but it would be far better to consider these facts and then go up and see the people in the anthracite coal regions—poor half-starved wretches Dr. Nearing would have them be; not by statement, it is true, but by implication. You will find them—children in arms and in school, women at their household duties and men at their work—strong and well-nourished, yet the men are buying homes, sending money to Europe, drinking at the saloon and attending the movies.

Only a Stranger Could Write Such a Book

Perhaps the miners should receive an increase in wage because everybody else is getting it; perhaps the 8-hr. day is better than the 9 hr. which most of the daymen work—though the miners average from 6 to 7 hr. per day; perhaps some change may be justified, but this talk of men underfed, impoverished, without sufficient calories to supply them with needed energy, can be written in the University of Pennsylvania or better yet at Toledo by a man who has read liveless reports, but not by a man who knows the facts. The statements are not merely wrong, they are silly. If the men are not now paid enough to live on how were they situated in 1899 when they made only 47 per cent. as much?

The publisher has placed a little inset in his book which says: "If in 12 years wages increased only 5½ per cent. while the cost of living increased 40 per cent., what would be your remedy for the workers? Anthracite mine workers are asking an increase to take care of the deficit." As a matter of fact we have seen that the increase is far greater—namely, 88 per cent. since 1899—and Dr. Nearing tells us in the heart of the book that 57 per cent. of the living cost in villages must be devoted to food. So 57 per cent. of the miner's expense has increased 40 per cent. in 12 years and his wages since 1899 have been bettered 88 per cent. Rent has not increased, the coal companies attend to that, and amusements and many other additional items are if anything lower.

One matter Dr. Nearing overlooks entirely and that is that the lower wages of outside workers and inside daymen result in few men with large families laboring at such work. The drivers in the mine are usually young men, unmarried or unblessed by children; the trapper boys and breaker boys are of course not to be reckoned as fathers of families of six. Some of the men around the plant are well along in years and fathers of many more than four children, but their progeny is already making money and all may have families of their own, so that the necessity for provision for six persons is less obvious. There is nothing to prevent day laborers from becoming contract miners at greatly increased wages.

Another matter Dr. Nearing overlooks is the fact that the miner largely fixes his own wage. No one knows how long he works. The miner has been asked to punch a time clock in one of the Dodson mines, but he went on strike and the clock was removed. The operator really doesn't know how many days the miner does work.

He knows how many days coal comes out on a certain check number, but the miner, though it is against the rules, may be out and the coal may come from the laborer. Neither miner nor laborer may be in and the coal may come out which was loaded late in the previous day. The record of the United States Geological Survey shows how many days the operations worked, but it does not attempt to show how many hours or how many shifts or part shifts any miner occupied his breast.

One naive midnight oil burner wrote for *Coal Age* an article saying that the air of the mines was so bad that the miners knew better than to work more than four days a week. As a matter of fact that is about all many of them do work, despite agreements to the contrary; and then the public is asked to sympathize with them and, what is worse, condemn the operator for his employee's small wages. Miners have always been free to work or rest at pleasure. In the Durham district of England they would set up a stick; if it fell toward the pit, it meant work for them all; if it dropped the other way, it was, "Back to the old 'ooman."

Lehigh & Wilkes-Barre Coal Co. Earnings

These are the reasons why the professor in Toledo is not a safe guide. But he is as unsafe in his accounts as in his calories. He takes the Lehigh & Wilkes-Barre Coal Co., a corporation more than ordinarily fortunate, by the way, and one having a very different balance sheet from that of the Philadelphia & Reading Coal and Iron Co. and the Delaware & Hudson Co. Nevertheless he juggles the figures on page 130.

He subtracts gross earnings from total expenses and obtains net income. From this he takes interest and sinking fund, and the figure $2,485,971 is obtained as a correct result. No one can explain how this is not the total earning available for distribution. But mysteriously he adds $1,197,625 for dividends. No dividends in a quick-rich scheme were ever more unfairly obtained by a fraudulent accounting than these by Dr. Scott Nearing, doubtless without unfair intent. Any dividends must needs come out of the surplus for the year, but Dr. Nearing writes them down below the surplus and deliberately adds the two together and gets a total surplus of $3,683,596.

Let us look at these figures, because Dr. Scott Nearing depends on them to show that the miners should have an increase in wage. If inspecting them shows that Dr. Nearing is wrong, all wrong, then the reader is not urged to say the miner should not have any increase in wage rate, but just to say—what is an undoubted truth—that the operators by surrendering all their dividends and surpluses cannot comply with the miners' demands unless the consumer by higher coal prices is prepared to render some aid.

The surplus of the Lehigh & Wilkes-Barre Coal Co. for the year is $2,485,971 on an outlay of $14,982,263, or 16.6 per cent. Will this pay a 20 per cent. increase in wage and in addition provide for the compensation charge and the cost of decreasing the time of the day men

from 9 to 8 hr.? Of course it will not, but Dr. Scott Nearing does not do any figuring of that kind. Given, he says, a generous profit a company can give its men a generous increase in wages, but the miners are asking for more than the companies are making or can make without a readjustment of the price circular.

It may be safely said that in the preparation of a bulky standard article like coal, the employer would make an iniquitous profit if he made one-half as much as the increase which the employees are demanding in the anthracite region. This should not escape a professional analyst like Dr. Nearing, and the omission of this consideration is a reflection either on his ability or his honesty.

On page 90, Dr. Nearing gives the mine profit on domestic sizes as $1 per ton, which is surely more than the 16.6 per cent. that the Lehigh & Wilkes-Barre Coal Co. made on this total expenditure for the year as quoted. He states that, "The Federal Report on the Production of Coal for 1913 made by Edward W. Parker (pages 886 and following) seems to show a mine profit on domestic sizes of about $1 a ton." The reader is asked to get that report, which is quite easy of access, and see if he can find the basis for that argument.

Dr. Nearing Guesses at Hard-Coal Profits

The statement is nowhere made, and had it appeared as stated, the report of Mr. Parker would have been incompetent, for at that time he made no investigation. The census report for 1909, which is the latest year for which statistics are available, states the average profit on anthracite for the year was 20c. per ton. Under his table Dr. Nearing says: "It should be noted that the mine profit of $1 per ton only applies to the domestic sizes of coal. Some of the smaller sizes are sold at an apparent net loss which, according to one line of reasoning, should be borne by the domestic sizes."

"According to one line of reasoning," speciously remarks Dr. Nearing. His viewpoint is different from that of most people perhaps, but why does he not carry it forward to its ultimate conclusion? Rock, shale and sulphur come out of the mine. Why should not the operator be compelled to place an equal proportion of his profit on them? They are products of the mines, and all products good or bad, according to some critics, should pay an equal profit whether the public desires those products or not.

Instead of carping we should be glad the operator sells his small coal even at a slight loss, for the sale helps the miner who has to mine it; it makes for conservation; and perhaps after a while when the consumers of coal are well equipped for such grades the operator will be able, to his great pleasure, to sell his small sizes almost at an equal profit with those that are larger, though they invariably run somewhat higher in ash and accordingly lower in heating power.

"The second obligation of the consumer is to vote (by his choice in purchasing) for the right quality of goods," says page 71. Does he do this by paying a rate for those coals which are inferior equal to that which he pays for those which are good? Would he fulfill Dr. Nearing's requirement if he paid for the large quantities of rock, shale, sulphur and small coal coming out of the mine as if they were stove coal?

As a matter of fact Dr. Nearing shows by his note at the foot of his table on page 90 that it is absurd to figure on a ton of stove coal as he has done it. Much more reasonably might a farmer figure on the flour alone and overlook the straw and wheat bran. The industry must be viewed as a whole because the operator must take it all or leave it all. He cannot open a stove-coal mine or a chamber of chestnut.

Our friend in Toledo has an interesting way of theorizing on the conditions in the anthracite region. This is based not on midnight oil, but entirely on midnight meditations. No one ever wrote and no one, not even a mine workers' agitator, ever told Dr. Nearing the following from p. 138: "The law of monopoly, 'all the traffic will bear,' is the law which fixes the anthracite wage. An employer has a Scotchman working for him at $3 a day. An equally efficient Lithuanian offers to do the same work for $2. The employer is not in business for his health, and the work is given to the lowest bidder." There is more along the same line on the page following, and it seemed so good to Dr. Nearing that he writes it also in slightly different wording on pages 111 and 112 and with much vigor on page 141.

It is similar to nothing in the anthracite coal regions. If the Scotchman quits his $3 job, and only a Lithuanian, however inefficient, can be found, the Lett gets $3 as surely as the man from Scotland. He can go to the Anthracite Arbitration Commission and demand it, and the back wages will be awarded even if the miner has consented to work and has worked for a year or more at the unauthorized wage.

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sylvania. The number of days worked in the two coal areas was far more nearly equal.

In 1899 the anthracite mines worked 173 days. It was not a particularly bad year, because the decade in which it is included contained one year in which 150 days were worked and the average for the 10 years was only 183 days per year. From the 173 days to 245 days is an increase of about 41 per cent. So it is clear that the miner is able to do better than in 1899. He has obtained a 33 per cent. increase in wage and a 41 per cent. increase in work, or a gross increase of about 88 per cent. This is a creditable increase, whatever Dr. Nearing may think.

If the reader wants to swallow all the worthy pedant's talk about calories, physical efficiency and standards, he may; but it would be far better to consider these facts and then go up and see the people in the anthracite coal regions—poor half-starved wretches Dr. Nearing would have them be; not by statement, it is true, but by implication. You will find them—children in arms and in school, women at their household duties and men at their work—strong and well-nourished, yet the men are buying homes, sending money to Europe, drinking at the saloon and attending the movies.

Only a Stranger Could Write Such a Book

Perhaps the miners should receive an increase in wage because everybody else is getting it; perhaps the 8-hr. day is better than the 9 hr. which most of the daymen work—though the miners average from 6 to 7 hr. per day; perhaps some change may be justified, but this talk of men underfed, impoverished, without sufficient calories to supply them with needed energy, can be written in the University of Pennsylvania or better yet at Toledo by a man who has read liveless reports, but not by a man who knows the facts. The statements are not merely wrong, they are silly. If the men are not now paid enough to live on how were they situated in 1899 when they made only 47 per cent. as much?

The publisher has placed a little inset in his book which says: "If in 12 years wages increased only 5½ per cent. while the cost of living increased 40 per cent., what would be your remedy for the workers? Anthracite mine workers are asking an increase to take care of the deficit." As a matter of fact we have seen that the increase is far greater—namely, 88 per cent. since 1899—and Dr. Nearing tells us in the heart of the book that 57 per cent. of the living cost in villages must be devoted to food. So 57 per cent. of the miner's expense has increased 40 per cent. in 12 years and his wages since 1899 have been bettered 88 per cent. Rent has not increased, the coal companies attend to that, and amusements and many other additional items are if anything lower.

One matter Dr. Nearing overlooks entirely and that is that the lower wages of outside workers and inside daymen result in few men with large families laboring at such work. The drivers in the mine are usually young men, unmarried or unblessed by children; the trapper boys and breaker boys are of course not to be reckoned as fathers of families of six. Some of the men around the plant are well along in years and fathers of many more than four children, but their progeny is already making money and all may have families of their own, so that the necessity for provision for six persons is less obvious. There is nothing to prevent day laborers from becoming contract miners at greatly increased wages.

Another matter Dr. Nearing overlooks is the fact that the miner largely fixes his own wage. No one knows how long he works. The miner has been asked to punch a time clock in one of the Dodson mines, but he went on strike and the clock was removed. The operator really doesn't know how many days the miner does work.

He knows how many days coal comes out on a certain check number, but the miner, though it is against the rules, may be out and the coal may come from the laborer. Neither miner nor laborer may be in and the coal may come out which was loaded late in the previous day. The record of the United States Geological Survey shows how many days the operations worked, but it does not attempt to show how many hours or how many shifts or part shifts any miner occupied his breast.

One naive midnight oil burner wrote for *Coal Age* an article saying that the air of the mines was so bad that the miners knew better than to work more than four days a week. As a matter of fact that is about all many of them do work, despite agreements to the contrary; and then the public is asked to sympathize with them and, what is worse, condemn the operator for his employee's small wages. Miners have always been free to work or rest at pleasure. In the Durham district of England they would set up a stick; if it fell toward the pit, it meant work for them all; if it dropped the other way, it was, "Back to the old 'ooman."

Lehigh & Wilkes-Barre Coal Co. Earnings

These are the reasons why the professor in Toledo is not a safe guide. But he is as unsafe in his accounts as in his calories. He takes the Lehigh & Wilkes-Barre Coal Co., a corporation more than ordinarily fortunate, by the way, and one having a very different balance sheet from that of the Philadelphia & Reading Coal and Iron Co. and the Delaware & Hudson Co. Nevertheless he juggles the figures on page 130.

He subtracts gross earnings from total expenses and obtains net income. From this he takes interest and sinking fund, and the figure $2,485,971 is obtained as a correct result. No one can explain how this is not the total earning available for distribution. But mysteriously he adds $1,197,625 for dividends. No dividends in a quick-rich scheme were ever more unfairly obtained by a fraudulent accounting than these by Dr. Scott Nearing, doubtless without unfair intent. Any dividends must needs come out of the surplus for the year, but Dr. Nearing writes them down below the surplus and deliberately adds the two together and gets a total surplus of $3,683,596.

Let us look at these figures, because Dr. Scott Nearing depends on them to show that the miners should have an increase in wage. If inspecting them shows that Dr. Nearing is wrong, all wrong, then the reader is not urged to say the miner should not have any increase in wage rate, but just to say—what is an undoubted truth—that the operators by surrendering all their dividends and surpluses cannot comply with the miners' demands unless the consumer by higher coal prices is prepared to render some aid.

The surplus of the Lehigh & Wilkes-Barre Coal Co. for the year is $2,485,971 on an outlay of $14,982,263, or 16.6 per cent. Will this pay a 20 per cent. increase in wage and in addition provide for the compensation charge and the cost of decreasing the time of the day men

from 9 to 8 hr.? Of course it will not, but Dr. Scott Nearing does not do any figuring of that kind. Given, he says, a generous profit a company can give its men a generous increase in wages, but the miners are asking for more than the companies are making or can make without a readjustment of the price circular.

It may be safely said that in the preparation of a bulky standard article like coal, the employer would make an iniquitous profit if he made one-half as much as the increase which the employees are demanding in the anthracite region. This should not escape a professional analyst like Dr. Nearing, and the omission of this consideration is a reflection either on his ability or his honesty.

On page 90, Dr. Nearing gives the mine profit on domestic sizes as $1 per ton, which is surely more than the 16.6 per cent. that the Lehigh & Wilkes-Barre Coal Co. made on this total expenditure for the year as quoted. He states that, "The Federal Report on the Production of Coal for 1913 made by Edward W. Parker (pages 886 and following) seems to show a mine profit on domestic sizes of about $1 a ton." The reader is asked to get that report, which is quite easy of access, and see if he can find the basis for that argument.

Dr. Nearing Guesses at Hard-Coal Profits

The statement is nowhere made, and had it appeared as stated, the report of Mr. Parker would have been incompetent, for at that time he made no investigation. The census report for 1909, which is the latest year for which statistics are available, states the average profit on anthracite for the year was 20c. per ton. Under his table Dr. Nearing says: "It should be noted that the mine profit of $1 per ton only applies to the domestic sizes of coal. Some of the smaller sizes are sold at an apparent net loss which, according to one line of reasoning, should be borne by the domestic sizes."

"According to one line of reasoning," speciously remarks Dr. Nearing. His viewpoint is different from that of most people perhaps, but why does he not carry it forward to its ultimate conclusion? Rock, shale and sulphur come out of the mine. Why should not the operator be compelled to place an equal proportion of his profit on them? They are products of the mines, and all products good or bad, according to some critics, should pay an equal profit whether the public desires those products or not.

Instead of carping we should be glad the operator sells his small coal even at a slight loss, for the sale helps the miner who has to mine it; it makes for conservation; and perhaps after a while when the consumers of coal are well equipped for such grades the operator will be able, to his great pleasure, to sell his small sizes almost at an equal profit with those that are larger, though they invariably run somewhat higher in ash and accordingly lower in heating power.

"The second obligation of the consumer is to vote (by his choice in purchasing) for the right quality of goods," says page 71. Does he do this by paying a rate for those coals which are inferior equal to that which he pays for those which are good? Would he fulfill Dr. Nearing's requirement if he paid for the large quantities of rock, shale, sulphur and small coal coming out of the mine as if they were stove coal?

As a matter of fact Dr. Nearing shows by his note at the foot of his table on page 90 that it is absurd to figure on a ton of stove coal as he has done it. Much more reasonably might a farmer figure on the flour alone and overlook the straw and wheat bran. The industry must be viewed as a whole because the operator must take it all or leave it all. He cannot open a stove-coal mine or a chamber of chestnut.

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The Labor Situation

SYNOPSIS—The biennial convention of the United Mine Workers in Indianapolis, Ind., on Jan. 18 was preceded by a convention of miners and operators on Jan. 17, the purpose being to agree on an interstate convention in which western and central Pennsylvania might be expected to take part.

Before opening up the great biennial convention of the United Mine Workers of America an attempt was made by the leaders of the miners to induce the operators of Pennsylvania to agree that they would enter an interstate conference for the purpose of making a definite interstate agreement. To this end a meeting was held in the Claypool Hotel, Indianapolis, Ind., on Jan. 17. As a result the interstate conference is assured, but the interstate agreement is a different matter and may not be attained.

The central Pennsylvania operators who had held a meeting at Clearfield on Jan. 10 and decided that they were unalterably opposed to an interstate agreement did not put in an appearance, but G. W. Schleuderberg, of the Pittsburgh Coal Co., and W. W. Keefer, of the Wabash-Pittsburgh Terminal Coal Co., did attend, explaining, however, that they were there simply to see what was going on. They were not ready to say that they favored a conference. In fact, the Pennsylvania operators think that their scale is more favorable to them than those which other states to the west have hitherto secured, and they are not disposed to relinquish its advantages.

Eastern Ohio Was Well Represented

Ohio was present at the meeting in somewhat full force. From eastern Ohio came S. H. Robbins, M. Gallagher, Joseph Pursglove and Charles E. Maurer. The Cambridge or Hocking Valley district of the state was represented by James Pritchard, the commissioner of its association, and the middle district by W. H. Haskins. But it had not been expected that the Hocking Valley would participate in the settlement. The Sunday Creek Coal Co. is said even now attempting to secure an entirely new and more favorable scale. James Pritchard accordingly did not vote.

The "bituminous" coal mines of Indiana were represented by P. H. Penna, A. M. Ogle, Hugh Shirkie, William Freeman, John H. Hewitt and Mort Gould, while the Indiana block mines had W. M. Zeller. Illinois had Rice Miller, C. M. Moderwell, H. C. Adams, Herman Perry and P. J. Wilson.

There was some lack of representation of Pennsylvania among the miners. Van Bittner, the president of the United Mine Workers in the Pittsburgh district (district 5), was present, and also Robert Wood, the secretary. James Purcell, of central Pennsylvania (district 2), and Richard Gilbert, the secretary, were absent.

John P. White, international president, and Frank J. Hayes, international vice-president, were present, and also the following Pennsylvania delegates of lower rank: F. P. Hanaway, James Flood, Tom Hughes, William Hargist, John O'Leary, Sid Davis, William Teare, James Oakes and Philip Murray. Ohio had John Moore, George W. Savage and Lee Hall, while from the Indiana "bituminous" region came William Mitch, Ed Stewart and Edgar Wallace. Illinois had Frank Farrington, Frank Hefferly and Duncan McDonald. John P. White acted as president and William Mitch as secretary.

The operators desired time to hold a caucus of their own to discover what was the consensus of opinion as to the action to be taken. The Pittsburgh men declared themselves against being bound to joint action in an interstate conference, but they did not oppose such a convention being held for an expression of the views of the operators of the different districts concerned.

Conference to Meet in Mobile, Ala.

Some favored an Eastern city for the assembly, preferably Philadelphia; others were in favor of a Western city, but not Indianapolis. Some advocated French Lick, West Baden, Chicago or St. Louis. It was decided eventually to take Mobile, Ala., on C. M. Moderwell's suggestion. Feb. 1 was fixed as the date on which the meeting was to be held. Each state will be represented by eight miners and eight operators. But from Pennsylvania they may not come or they may be instructed to do nothing. There is a long way between an agreement not to protest against a meeting and a willingness to see it take place and act effectively.

Much was said about the impossibility of raising wages. Schleuderberg stated that the high prices in his district were largely due to embargoes and were therefore merely temporary. As a matter of fact wages can be raised in the coal trade if every operator in union and nonunion districts will raise them equally, and no one will know the difference. Absence of profits is not a cause for not raising wages uniformly, for there might be no profits even if the wages were lowered an equal amount in every field. Let us free ourselves from the illogical ideas based on past conditions.

If Illinois says it cannot stand for the present differentials in wages between Pennsylvania, West Virginia and Illinois well and good, but if every section is to add a few cents to the cost of mining, the amount being equal in all states, every state in the Union can stand such a change, Illinois as well as Pennsylvania. Perhaps Illinois can stand such an increase even better than Pennsylvania, for the efficient handling of coal in the former state assures it that it will pay less of the increased wage, if it is a flat increase, than any other state.

The question is not whether the operators can pay it, for they can if they all determine to, but the real problem is whether by reason of increased cost of living and increased wages in other labor the miners are entitled to an increase. Living has not increased in cost in the last two years, but it must soon if all other earners get increased wages as it seems indicated at present that they will. So the miners appear to have this as a good argument. When other workingmen receive an increased wage the miners' social scale will be lowered if they do not also receive more wages.

These Are Days of Collective Bargaining

We forget that we are not face to face with the conditions of our dads. Then operators did well to resist every increase in wage. They were playing a lone hand, and every day they could keep down wages profits were obtainable from this fact. Now wages go up throughout the industry, and prices must go with them, and we must not forget this fact. However, there may be, it must be conceded, some gains from increases for some people. With a percentage increase the gain goes to the operators paying the lowest wages. With a dead increase—a rise uniform regardless of present wages—the advantage goes to the firms which are producing coal with the least number of day hands unless the dead-work scales are such that they overbalance that advantage.

To show the effect of the dead-work scale, one section might pay nothing on some form of work, say draw-slate handling, and another might pay liberally for it. Unless the fixed increase in wage applied to both and scheduled the unscheduled slate handling in the former section, then of course the section paying for disposal of this material would stand to lose. Doubtless in some regions the handling of slate is not necessary, and so could not well be scheduled, or if scheduled, the schedule would be inoperative.

The biennial convention will not be discussed in this issue because the meeting has not yet reached sufficiently definite conclusions.

Inquiry Into the Explosion at Ravensdale, Wash.

As was stated in *Coal Age*, Dec 4, p. 931, an explosion occurred on Nov. 16 at Ravensdale, Wash., in the mines of the Northwestern Improvement Co. The fatality list totaled 31 miners. A careful official investigation of the causes of the disaster has recently been made, but it failed to disclose the source of the trouble. Several mine employees testified that previous to the disaster they had occasionally found gas in the chutes, but that it was always cleared away rapidly before it could do any damage.

Nearly all the witnesses were unanimous in their opinion that the air in the chutes and the gangways was good. They declared, however, that the third level, where the explosion occurred, was very dusty and that the floor and ribs were covered with fine coal. The most important testimony was that submitted by a fireboss who stated that about six weeks before the explosion he had remonstrated with several of the miners for tamping shot holes with coal dust instead of with clay or moist dirt, as required by the company's rules.

Several miners testified that many of them were allowed to fire their own shots, though the general practice

was to let the fireboss examine them and do the firing. One of the firebosses said that he had examined the third level of the mine on the morning of the explosion and that he found nothing to lead him to believe that gas was present.

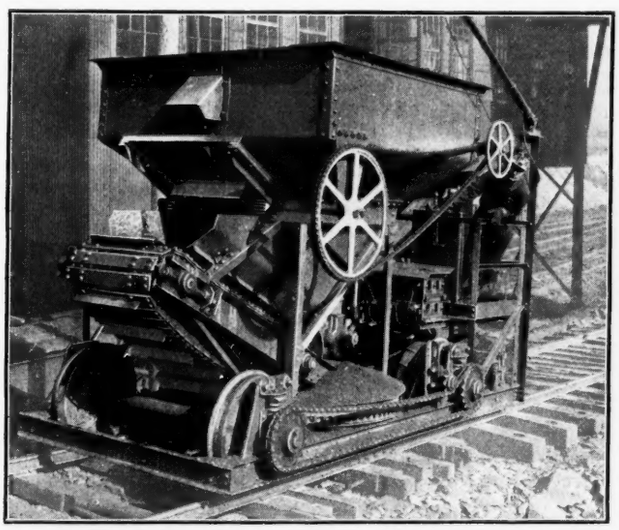
He declared that the chutes were unusually dusty and that because of this they were sprinkled frequently. He said he had never received any complaint from any of the miners about the presence of gas in the chutes. The members of the State Bureau of Mines and the coroner's jury are of the opinion that the cause of the explosion will never be known.

Refuse-Stacking Car

By J. Pierre Vogel*

On the front cover of this issue of *Coal Age* is a remarkable photograph of a refuse-stacking car in operation at the Brush Creek Coal Mining Co.'s Waterman mine, Waterman, Indiana County, Pennsylvania. The accompanying figure shows this car more in detail.

The development of bituminous coal mines with large prospective capacities within the last few years has made it necessary for operators and engineers interested in the



REFUSE-STACKING CAR IN USE AT WATERMAN MINE, WATERMAN, PENN.

design of surface equipment to give considerable thought to the mine rock disposal proposition. In addition to the rock the wasting of the bone coal and other refuse made by the modern bituminous-coal preparing or picking plant has become a serious matter when the mine is operated by a substation and there is no boiler plant convenient in which it can be used for fuel. The increasing, and in some cases enormous, volume of this refuse material and its liability to ignition, spontaneous or otherwise, have called for some radical change in the method of handling.

These difficulties led to the development of the refuse-stacking car shown in the accompanying illustration. This car, to describe it briefly, receives 5 tons of mine rock or refuse, by one or several chutes, from a bin located at the tipple and is propelled by a motor (all wheels being driven) along either a level or adverse grade (up to 6 per cent.), at a speed of 600 ft. per min. Upon arriving at the wasting place, the hopper, which is mounted on a turntable, is revolved by the attendant in the direction in which it is desired to discharge the material. The high-speed apron conveyor driven by its own motor is then started and when the conveyor is up to speed, the material flows from the hopper through a gate onto this apron and is thrown 20 to 30 ft. from the center of the car. The apron conveyor is necessarily of a special design to withstand the severe service required of it and is made of special chain having malleable-iron and forged-steel links, hardened-steel pins, with heavy bar slats and tees inserted every 20 in. to form the carrying apron.

This car is operated by one man, who, owing to the large capacity and speed of the car, has sufficient time to perform other work around the tipple, not half of his time being spent on the car at a plant making a large quantity of rock and refuse.

It will also be readily appreciated that the saving effected in labor for trackwork on the refuse pile is a considerable item, as the track once laid will make a pile at least 40 ft. wide at the top and the car makes the fill for its own track ahead. It has also been found that, by making a wide refuse pile of minimum height (12 to 15 ft.) and allowing it to weather before adding more to it, no fires would occur that would result in the loss of the refuse track and interruption of the operation of the refuse-handling system.

This system was installed for the Brush Creek Coal Mining Co. under the direction of L. W. Robinson, president, and F. M. Fritchman, general manager, by Heyl & Patterson, Inc., Pittsburgh, Penn., which firm has applied for patents on this car.

A Remarkable Shale Found in an Illinois Mine

In the underground workings of the Coal Valley Mining Co., at Sherrard, Ill., an unusual shale of a carboniferous nature is found. Several years ago Carl Scholz, president of the company, while examining the old workings, which had been abandoned for many years, was struck with the abundance of white crystals which came up from the bottom and filled the rooms almost to the roof. His investigations originally were for the purpose of checking the extensive swellings, but upon observing the astringent taste of the material the thought occurred to him that it might be possible to turn the deposit into commercial use. There is estimated to be 1,500 acres holding this shale, with an average thickness of 5 ft., yielding between five and six million tons of the material available for extraction. The shale upon contact with the atmosphere oxidizes and swells.

Various processes for the commercial utilization of the product were investigated through chemical establishments, but little encouragement was found. In 1908 samples of the shale were sent to Germany for test and investigation, and one of the chemists of the School of Technology at Charlottenburg said that it would make one of the best paint pigments ever seen. Samples of the shale have been submitted to a number of paint manufacturers, who express the opinion that it has considerable value for this purpose.

Upon calcination and grinding the material yields high-grade venetian red paints of various shades, ranging in

*Pittsburgh, Penn.

value from $15 to $30 per ton. Large amounts of sulphuric acid can be obtained by means of an incineration process, as found by laboratory tests, which show that from a ton of shale there can be recovered 19 per cent. of acid, or 382 lb., worth at the present time approximately 4½c. per lb.

It was found by the Wisconsin School of Agriculture that, by mixing the screened crystals of this shale with water and sprinkling it over a railway right of way, weeds could be exterminated, and this was true elsewhere where is was necessary to kill them. No injury to soil or roadbed resulted.

The process of extracting this shale and manufacturing it into paint pigments, sulphate of iron, copperas and other byproducts seems to be a comparatively simple one, and it is likely that a plant will be established to utilize the deposit commercially.

Economics of Haulage

The preliminary or proposed plan of a coal mine involves the adjustment of many items relating to natural local conditions. If the item of haulage is to be considered, the problem of obtaining an economic grade for each section of the development is primary in importance if the combination of the presence of water with a soft fire clay bottom does not compel other arrangements. There are localities, however, where the seam lies approximately level and entries or headings may be driven in any direction convenient for other reasons.

The engineer must then plan the system of working to give the shortest haul with the minimum expense for construction and maintenance of roadways and also the least cost for entry driving.

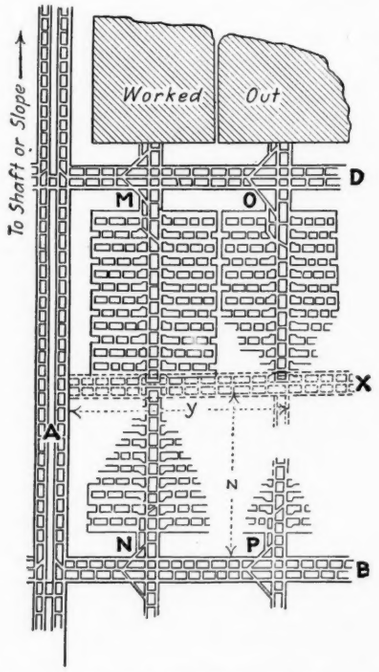
In localities where union labor is employed a charge generally known as yardage is made for driving the entries narrow. Narrow work usually includes all work less than 18 ft. wide. The price per linear yard of entry varies somewhat in different fields, as it is fixed in the district contracts made between the operator and the labor organizations.

By increasing the amount of entry driven to a certain amount the shortest haul may be obtained. To effect this advantage the expense of constructing and maintaining the additional roadway and a reduction of efficiency through loss of ton mileage per foot of motor road operated must be considered. The illustration shows a modified panel system of mining which is rapidly being adopted in many sections.

From the main heading A secondary headings B and D are driven, and from the secondary headings the room or butt headings are driven on both sides. Partings are located on the butt headings just off the secondary heading.

In gathering from rooms on butt heading N the coal is hauled away from its ultimate destination; in gathering from rooms on heading M the coal is hauled toward its ultimate destination. In order to eliminate this back haul the secondary heading X, indicated in the sketch by dotted lines, could be driven and all coal from the territory of N and P taken out over a roadway located through this heading. By driving this additional heading the mine may develop sooner in that particular section, but the usual rush for coal at an immediate low cost too often induces a method of working which results in a sacrifice of future profits.

The cost for yardage in driving heading X, combined with many other items, will be an additional expense to



PROJECTION OF A MODIFIED PANEL SYSTEM

be prorated over the cost of producing the tonnage from the territory served. The items of expense for heading X alone may be expressed by formulæ.

Let

y = Length of heading X in feet;
c = Yardage cost of driving 1 yd. of entry expressed in dollars;
n = Number of entries on the heading;
C_1 = Total cost of yardage for X;
C_2 = Cost of construction of overcasts, brattices, doors, etc.;
C_3 = Cost of construction of main haulage track, exclusive of switches, minus the salvage value of the material when released;
C_4 = Cost of maintaining the roadway, stoppings, doors, overcasts, etc., during the period coal is being hauled;
E = The value of the loss of efficiency from a reduced ton mileage per foot of main motor road operated.

Then

$$C_1 = \frac{cny}{3} \qquad (1)$$

and

$$C = C_1 + C_2 + C_3 + C_4 + E \qquad (2)$$

where

C = Total expense resulting from having driven the heading X.

The value of E is really a function of C although difficult of calculation. It is easy to see, however, that if heading X is omitted the traction on roadway B will be doubled and the combined tonnage (T) from butt head-

ings N and P will have an average back haul of $Z/2$ ft. Let

V = Cost of hauling 1 ton 1 mile underground, expressed in dollars;

K = Total cost of back haul in dollars.

Then

$$K = \frac{TVZ}{5{,}280 \times 2} = \frac{TVZ}{10{,}560} \qquad (3)$$

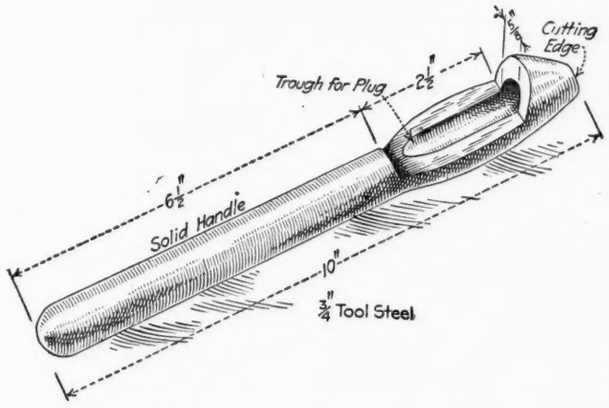
The advantages of driving the additional heading are now expressed by the value of K and the disadvantage expressed by the value of C. If other factors are not considered, the ratio of these values determines the ultimate plan to be pursued. The values for the assumed variables must be chosen only after accumulating and digesting all pertinent information obtainable in the same operating field or in a field supposedly similar. The value of the results will depend upon the competent judgment employed in the calculation, and the equations simply represent a plan of reasoning and investigation that should be undertaken before adopting a decisive system of operation.

Device for Making Spad Plugs

By H. L. Butler*

The accompanying illustration shows a useful device for making spad plugs. The tiresome job of whittling plugs is avoided, there is no litter, and much time is saved. With it several hundred plugs can be made in a few minutes.

Where sandstone or sandstone-and-slate roof is encountered in the mines, it is necessary to use a hand drill or jumper to place holes for station and sight spads in the



A SIMPLE TOOL FOR MAKING SPAD PLUGS

roof. This requires a plug to be driven in the hole to retain the spad. The device is used in making these plugs. It is formed by flattening a piece of tool steel at one end and rolling it into a circle the exact size of the plug desired. A slot is cut out to allow the plugs to pass out as they are made. The cutting edge is sharpened on an emery wheel, and the tool is then tempered.

Poplar wood is best to use in making these plugs, as this swells on becoming moist and remains firm when once set. The wood is sawed to the desired length across the grain. The illustration shows a tool for making plugs ⅝ in. in diameter, which is a convenient size, but one of any diameter can be made by increasing the diameter of the cutting circle.

The practicability of this tool has been thoroughly demonstrated, and it can be made by any first-class blacksmith.

*Premier, W. Va.

Coal Freight-Rate Problems

The following facts and figures have been presented to us by C. C. McIntosh, of Huntington, W. Va., as proof that the demand of the Norfolk & Western Ry. for an advance in rates on coal transportation is not justified. Mr. McIntosh states that the information comes from a highly reliable source and is entirely worthy of trust.

Nearly 80 per cent. of the total tonnage of the Norfolk & Western Ry. for the year 1915 was bituminous coal and coal products. To be exact, it was 79.13 per cent. This was a gain of about 1 per cent. over the tonnage reported for 1914. About 5½ per cent. of the total tonnage was lumber, 9½ per cent. was manufactured articles, about 4 per cent. agricultural products and nearly 2 per cent. cement, brick and lime. The freightage of other commodities was inconsiderable.

The construction of the road and its equipment are specially designed for the carrying of coal. The stability of the road and its capacity to earn money depend almost wholly on the fuel movement. It was built from the mines to the markets to be served by the most direct route possible and without special view toward the transportation of other commodities. The Norfolk & Western Ry. depends on coal and has grown and profited in exactly the proportion that the coal business has increased and prospered. While the total traffic fell off last year 1,300,000 tons, there was a gain of about 1 per cent. in coal traffic, as has been shown.

PROSPERITY OF THE NORFOLK & WESTERN RY.

In 1902 the Norfolk & Western Ry. carried about 5,500,000 tons of coal, in 1912 it carried nearly 20,000,000 tons, while in 1915 the tonnage closely approached 30,000,000.

The coal-transportation rates of the Norfolk & Western Ry. are apparently 8.24 per cent. higher than those of the Chesapeake & Ohio Ry. The average rate appears to be 92.35c. per ton transported. At this rate the present traffic of coal on the Norfolk & Western Ry., which is placed at 27,935,000 tons for the year, means a revenue from that source of $25,797,900.

The gross earnings of the Norfolk & Western Ry. are now said to be running 22.7 per cent. ahead of the receipts of last year. An estimate has been made and given circulation showing that the total net income of the road for the current year will amount to $20,220,000. Estimated charges and taxes to be deducted from this, amounting to $6,366,500, will leave a surplus for dividends for the year of $13,853,500. These figures, it is declared, are rough approximations, advance figures not being available. It is claimed, however, that the estimates should be fairly close.

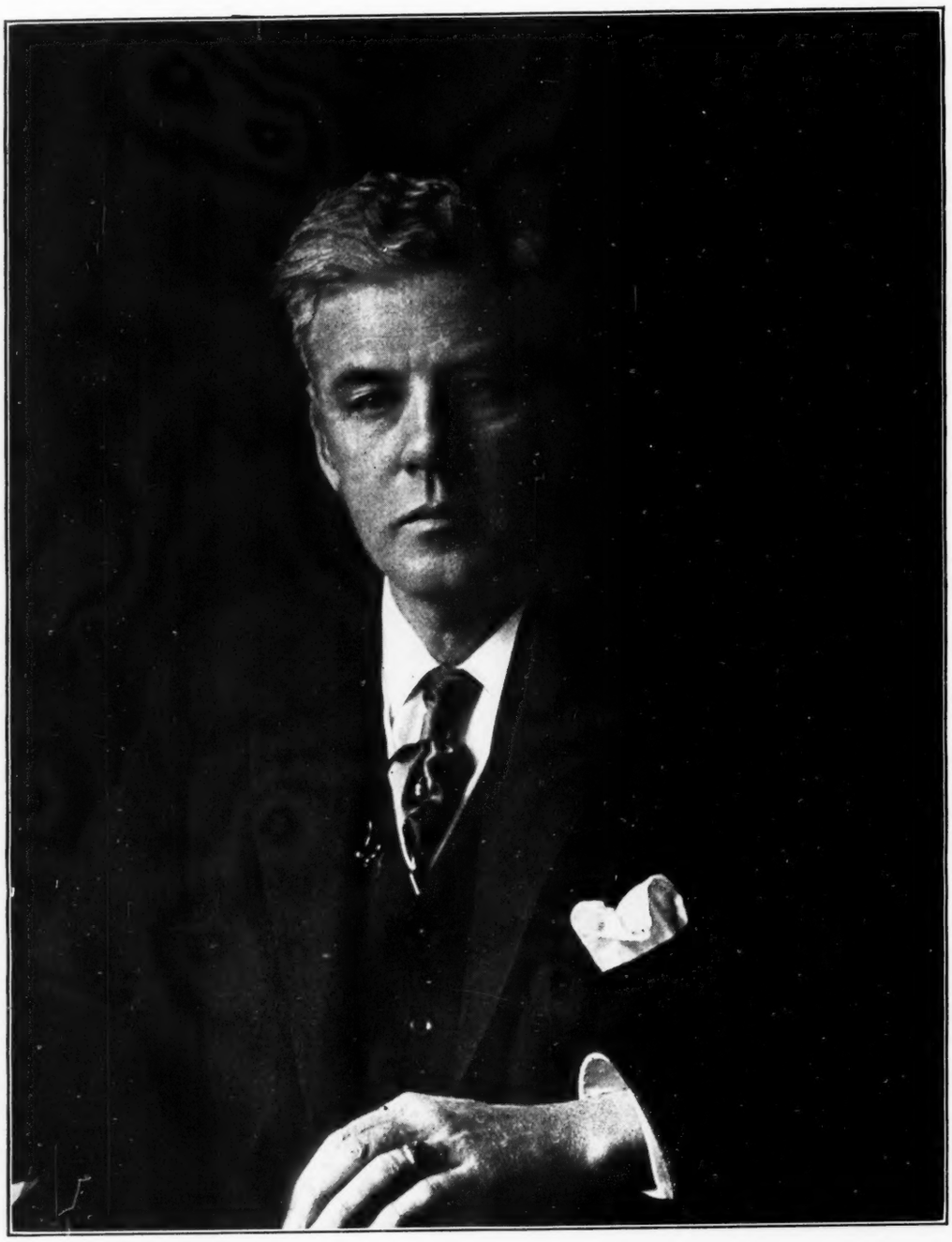
Norfolk & Western Ry. common stock is now earning 11.8 per cent., as compared with 8.77 per cent. in 1915, 10.17 per cent. in 1913 and 11.71 per cent. in the prosperous year 1910. Norfolk & Western Ry. stock is declared to be one of the most stable and conservative investments among all the railroad stocks of the world. The funded debt is not so large as five years ago, and the fixed charges have been reduced to low proportions. This statement appears: "It is doubtful if another road in the United States can show so clean a bill of health."

DOES NORFOLK & WESTERN RY. DESIRE INCREASE?

Mr. McIntosh adds: "The West Virginia coal producers declare that this amazingly prosperous railroad, serving a wonderfully favored coal section, is to be made the victim of a conspiracy on the part of the Pennsylvania R.R. (its owners) and certain financial interests having the power to declare what shall be the policy of the Norfolk & Western Ry. and other West Virginia railroads.

"It is not possible to believe that the officers and others interested in the Norfolk & Western Ry. and other West Virginia carriers entered with any heart into this fight for a rate increase. They have been made the puppets in a scene contrived by interests outside the state.

"It cannot be believed that the wonderful state of prosperity outlined for the Norfolk & Western Ry. would exist if the rates that are asked for should be granted by the Interstate Commerce Commission. The loss of business that is bound to follow would abound in ill to the railroads as well as the coal producers."



John Mitchell

John Alexander Hill

John A. Hill, president of the Hill Publishing Co., died suddenly from heart disease on Monday morning, Jan. 24, while traveling in his motor car from his residence in East Orange, N. J., to his place of business at 10th Ave. and 36th St., New York City. Mr. Hill had been engaged as usual in business affairs, and on leaving his office Saturday seemed to be as well as ever. Only a few of his intimate associates knew of the heart affection that caused his sudden death.

He was 57 years of age, having been born on Feb. 22, 1858, on a remote hill farm in the town of Sandgate, near Bennington, Vt. While he was a young lad his parents emigrated to central Wisconsin, settling at Mazomanie.

His childhood was that of the average boy on a small farm, and when 8 years old he was intrusted with the care of a flock of 300 sheep. His education was obtained in a country school, which he attended for a few months during each of five winters. He early learned to shift for himself, and at 14 years of age went to work in a country printing office, of which he was foreman at 17. He had a Yankee boy's liking for mechanics, however, and after some years in the printing office he became half-owner of a machine shop, where he carried on repairs to a variety of local machinery.

At 20 he was seized by the "Leadville Fever" and spent about a year roughing it and prospecting. He then obtained a position as a fireman on the Denver & Rio Grande R.R., being promoted to engineer within a year. This was in the early days of that road and just before the great "Santa Fe war," when to drive a locomotive up the mountains and around the edges of cañons required both nerve and courage. Very soon the young engineer gained a reputation for more than ordinary ability and coolheadedness. These same qualities later on made him roundhouse foreman and assistant superintendent of motive power.

An opportunity for study presented itself to the young engineer when he was put in charge of the engine of a snowplow. Its irregular runs gave him time for study, and he applied himself to railroad work and mechanics. Soon he began to contribute articles to the railway engineering department of the *American Machinist.* His first article was published in the issue of May 23, 1885, under the title of "Oil for Locomotive Motions." The encouragement that came to him from the generous reception given to his contributions turned his thoughts more and more away from railroading and toward technical writing. In 1885 he founded the *Daily Press,* of Pueblo, Colo., and edited it for some time.

As a writer he had a forceful, original and breezy style and a thorough familiarity with practical matters. These qualifications, combined with a knowledge of the ideas and needs of the men in railroad work, enabled him to write articles which not only were well received in their day, but which still live in book form.

At the end of the year's venture on the *Daily Press* he returned to the Denver & Rio Grande and ran an engine until 1887, when the *American Machinist,* deciding to start a monthly journal, the *Locomotive Engineer,* called him to be its editor. This brought him to New York in time to prepare for the first issue of 1888. Three and a half years later, in company with Angus Sinclair, Mr. Hill bought the *Locomotive Engineer* from the American Machinist Publishing Co. and changed its name to *Locomotive Engineering.*

The success of this journal under the new management was immediate, and was due in large measure to Mr. Hill's ability to give human and general interest to articles on mechanical and engineering subjects. Two notable series of stories that attracted wide attention were called "Jim Skeever's Object Lessons" and "Stories of the Railroad." Both of these were afterward reprinted in book form. His experience as an engineer had taught him the evils and shown him the inherent weakness of the old rule of railroad promotion—according to length of service. He strongly advocated a system under which specific subjects were studied each year and promotions made according to efficiency. This system he embodied in his work, "Progressive Examination for Locomotive Engineers," which was later adopted by the American Railway Master Mechanics' Association as a standard form of examination on American railroads.

During the early years of *Locomotive Engineering* Mr. Hill was both editor and publisher. Although its success was phenomenal, his keen business insight showed him that a journal appealing largely to locomotive runners had not the elements for the largest kind of business achievement. He perceived a larger opportunity in the *American Machinist,* a journal of good standing and reputation, but which for years had been conducted along ultra-conservative lines. So in 1896, with Mr. Sinclair, he bought the *American Machinist* and a year later sold his interest in *Locomotive Engineering* to his partner, thus becoming the owner of the technical journal with which his name has been longest associated. This connection was the foundation for one of the largest enterprises ever established in the field of technical publishing.

At this time, 1896, practically all business publications had their printing done by contract and were limited by such facilities as the printers were willing to provide. Mr. Hill's early experience as printer and publisher had given him a strong liking for the mechanical, or manufacturing, side of the work, and he was ambitious that his publication should own and operate its own printing plant. In order, however, for such a plant to be commercially successful, its expense and effort must be spread over a number of journals.

It was this situation among others that led Mr. Hill to add to the already successful *American Machinist* other well-established technical journals of high reputation. His first purchase was *Power,* in 1902. At that time this publication was a monthly journal devoted to the field of power transmission. Mr. Hill at once changed it to its present form and in 1908 made it into a weekly. In 1905 he became the owner of the *Engineering and Mining Journal.* A fourth journal, *Coal Age,* was established in 1911 to cover a field which had become too broad to be successfully reached by the *Engineering and Mining Journal,* which is now solely devoted to metal-mining interests. In 1911 he purchased a fifth journal, the *Engineering News,* from its founder and chief owner,

George H. Frost, and in November of last year he bought and consolidated with *Coal Age* the *Colliery Engineer,* of Scranton.

Meanwhile the influence of the *American Machinist* had been spreading abroad to such an extent that in 1900 a British company was formed to publish the European edition. Nine years later a German company was formed to translate it into German and publish it from Berlin. This made the *American Machinist* by far the most representative of all the international technical journals.

An enterprise of Mr. Hill's last years, in which he took great pride and to which he devoted his best energy, was the construction on the west side of New York City of the great building to house his publications. This structure was completed in the latter part of 1914. It was characteristic of him that not only did he plan at every point to suit the convenience and economy of manufacturing in the printing and publishing business, but that he also made unusual provision for the safety, comfort and health of the army of workers that the building houses daily.

His initiative and leadership in the field of technical publishing are forcefully shown by the fact that many features of what is now considered best practice were inaugurated by him.

He was first in printing a circulation statement in each issue, in adopting the standard magazine size of page—9x12 in.—in discontinuing the acceptance of copies returned by news companies, in establishing an advertisers' service department, in discounting exchange advertising, in refusing to pay agents' commission on advertising contracts, in selling display advertising space on a flexible contract and in publishing a buyers' cyclopedia. Numerous mechanical improvements and developments in printing machinery are also to his credit. Both the rotary sheet-feed presses and the web presses used in his own shop were built by manufacturers according to his suggestions.

In addition to carrying on his own business he acted as mechanical engineer from 1900 to 1902 for the General Manifold Co., Franklin, Penn. Here he had charge of the building and superintending of the plant, the designing of special machinery and the development of continuous manifolding machines.

Mr. Hill was married in Wisconsin in 1882 to Emma B. Carlisle, who with one daughter survives him.

The story of Mr. Hill's life is a remarkable illustration of a man winning his way by sheer strength and ability. Born in the humblest surroundings and with only such education as was afforded by the country schools in the woods of Wisconsin about half a century ago, he well proved the saying of the president of one of the leading American engineering colleges that "life itself is an education."

From his early boyhood, in whatever occupation he was engaged his personality was such that his associates instinctively recognized him as a leader, as a forceful organizer. In fact his capacity for organization was so great that he developed about him an organization for carrying on the manifold responsibilities of his five journals which easily carried all burdens during absences of several months at a time. The impression he made on those who met him was inavariably that of a man of strength and force. While he was a typically self-made man, he had none of the objectionable conceit which is sometimes supposed to characterize men who have risen to power from humble beginnings.

Mr. Hill was by nature modest and retiring. He was a genial man, fond of companionship and with an endless fund of good stories, but social and club life had little attraction for him; his two chief interests were the enterprise he had created, in which he took such pride, and his home. For many years it had been Mr. Hill's custom to write a Christmas greeting that reached every employee on the afternoon before the holiday. The one for last Christmas is so typical of his kindly interest in those around him, as well as showing the individuality of his literary style, that it is quoted below:

"The year 1915 is almost gone; it has brought more loss, suffering, death and despair to the human race than any other year of all recorded time, and yet, it has been good to us.

"We have not done so well as in former years, yet we have done well.

"We are all here—not a funeral or a serious illness in our ranks. Most of us are warm and eat regularly—Allah be praised!

"All signs are favorable for better times, the optimist is in charge and the pessimist has been run over by the steam roller that is making the road to business clear—this concern is full of hope and that 'Christmas feeling.'

"Most people dislike to get a bill at this time of the year, but here's one that you need not pay, so we think it will be welcome.

"With it goes a 'thank you' for every little item of service you have furnished this past year which has gone to make up the million-dollar mosaic that this company has made out of all our little items of service combined.

"If your heart and mind be charged with as much good-will, love and respect for the Hill Publishing Company as the institution has for you, the next year will be comfortable and happy for the whole works—big wheels, little wheels, case and fob."

Mr. Hill was essentially a man of broad human sympathies. He took a fatherly interest in the welfare of his employees and delighted to have them refer to him as "The Old Man," a term to which he indeed gave wide currency in his early writings on experiences in machine shops and locomotive roundhouses.

Mr. Hill was a member of the Engineers' Club, of New York City, vice-president and charter member of the Machinery Club, member of the Railroad Club and of the Campfire Club. In 1913 he was elected a member of the American Society of Mechanical Engineers, among his references being Thomas A. Edison and James Hartness. He was the first and only president of the McGraw-Hill Book Co., chairman Hill Publishing Co., Ltd., of London, and president Deutscher Hill Verlag A. G., Berlin, publishers of *Maschinenbau,* the German edition of the *American Machinist.*

The esteem in which Mr. Hill was regarded by his employees was put into words engraved on a bronze tablet over an ornamental fountain presented to him soon after the new Hill Building was completed. This is the inscription:

"Within this monument to independence, truth and service in engineering journalism the employees of the Hill Publishing Company have placed this tablet—an appreciation of the man and employer, John A. Hill."

Discussion by Readers

Efficient Mine Foremen

Letter No. 23—Knowing something of what the mine foreman is up against, after an experience of several years, I want to say that there are four things that an efficient foreman must possess—namely, a certificate of competency, practical experience, good common sense and lots of energy. Having these he is fairly well equipped to hold the position of mine foreman.

Speaking of certificates of competency, I was asking one of the state mine inspectors what he thought of the new law in Pennsylvania. Instead of replying to my question directly, he asked me how I would like to take a trip to Europe in a ship that had no certified captain, which he thought was a parallel case to operating a mine without a certified mine foreman. However, the practical working of the law will prove its fitness or otherwise and we can well await developments.

The mine foreman's life is a round of duties and tasks for the performance of which he is held personally responsible. He is face to face with the mandate, "He shall see," etc., or, "He shall do," etc. While he must carry out these laws, he must at the same time please the superintendent, follow the directions given by the engineer, listen to the complaints of the miners in almost every working place he enters and satisfy the mine committee by plausible arguments that the men are not being robbed by the company.

Chance Happenings Cause Delay

In addition to these requirements there are a multitude of things that are likely to happen any day in the mine and which will throw one or more places or sections of the mine idle for the rest of the day. A cutting machine may break down, or a pump refuse to draw its water, or a fall of rock may occur on the main-haulage road, thereby blocking the drivers, or the hoisting rope break so that no coal can be hoisted for a time; and the foreman must answer for all of these possible accidents, which will cut down the output of coal for that day. He is fortunate if he can dodge the superintendent the same night.

I have known superintendents who made it their business to question the men who quit early, to learn the cause of their coming out. Such a practice is naturally discouraging to a mine foreman. An efficient foreman would much prefer that the superintendent get this information from him, which would show the confidence the superintendent has in his rendering a trustworthy report. I worked for one superintendent who, if all the men came out, would question none of them until he had seen me. The plan, however, was not without its advantage to the superintendent himself, as he was not pestered with the complaints of the men. They were compelled to deal directly with the foreman.

The confidence that a mine superintendent establishes between himself and his foreman is one of the strongest possible incentives to efficiency. It gives a foreman the energy he needs in carrying forward the work. Where a foreman lives in daily fear of being unjustly censured by a superintendent who neglects or refuses to make a full and careful investigation of happenings in the mine, his power to produce results is lessened. I remember reading an article in *Coal Age* a few years ago written by Sim Reynolds and entitled "Carpetbagging." Too many mine foreman are sufferers from this cause today. The discharge of a mine foreman without a full investigation of his acts is a real money loss to the company.

When a New Foreman Assumes Control

A foreman going to a new place requires the exercise of careful judgment. He sees many things that he would like to change and knows, by so doing, he can improve the mine and increase the output. He must remember, however, that expenses will go up while making such changes, and if this is not thoroughly understood beforehand by the management, he will be justly censured for the increased cost of production. If he is discharged as a result, his successor will reap the benefits of his work and efforts to improve the mine. The newcomer finds things in good shape and sends out coal at a reduced cost. He may be an inferior man to the one whose place he is filling and yet, as a result of his good showing, he is promoted perhaps to a superintendency, while the next man who follows him as mine foreman may find the mine in the condition it was when the first man came to the place.

All of these things go to make the life of a mine foreman an arduous one, especially if the superintendent who hires him is not a broad-minded man and the mine foreman himself one who is frank and outspoken in all of his dealings with the company, so that they will fully understand his aims and purposes and be able to judge of his acts correctly.

Mine Foreman.

——, Penn.

Waste of Material in Mines

Letter No. 1—In reading the letters relating to efficient mine foremen, I find many good points mentioned in regard to the waste of material sent into the mines. Most of the instances given are in the bituminous field, but I want to give a little of my experience in one of the big mines in the anthracite region during the last five years.

In December, 1914, I finished the chamber where I was employed taking down props. I was paid to save all props and place them in a crosscut, which I did. Only this month, January, 1916, I was in the same place and was surprised to find that the props were still in the crosscut where I had placed them. I learned that the reason was that the foreman had refused to pay the miner working the next place for moving them, which could have been done at a cost of 5c. apiece. To estimate the value of this timber, which can now never be used again, there were 50 props 14 ft. long, for which the

company paid, say, 9c. a foot. This makes the total cost $50 \times 0.14 \times 9 = \$63$. To this must be added the cost of recovering the props at 5c. apiece, which makes $50 \times 0.05 = \$2.50$, making a total loss of $65.50, in driving a chamber 300 ft. long. Many foremen would rather let the company lose $65.50 than to add $2.50 for company time on the day sheet.

Waste of Timber in Anthracite Mines

There are many such chambers in the anthracite region, and in this one big mine there are many props lying in old crosscuts where they have been thrown because they were too large for the miners to take to the face. They are evidence of the bad judgment on the part of the mine foreman or his assistant. I have seen 10 chambers in one section of this mine with from 300 to 350 ft. of sheet iron in each chamber and four times that much of planks. They had been there so long that the iron was rusted and full of holes and the planks were rotted and unfit for further use. The foreman would say that he could not increase his pay sheet with the amount necessary to save this material.

In most cases the wooden rails are left in chambers where the top coal is left up. Five years ago a chamber was finished and the road left in the rooms. Two years later I was sent to that chamber to drive a crosscut 50 ft. long for ventilation. I found the rails in the rooms so rotted that they were unfit for use and was obliged to take it all out and put in a new road, at a cost, including the driving of the crosscuts, as follows: One miner, 25 days at $2.50 a day, $62.50; two laborers, 25 days each at $2.20 a day, $110.00—a total of $172.50.

This does not count the cost of the material. Later, when the top coal must be taken down, the chances are that the road will have to be laid again, making three lengths of road in driving this room 325 ft., or 975 ft. of wooden track. Incog.

Plymouth, Penn.

Recovery of Pillar Coal

Letter No. 1—I was surprised to learn from reading the editorial in *Coal Age,* Dec. 18, p. 1024, that H. M. Chance in a recent address stated, "It does not pay to remove all the coal, except in longwall work"; and, again, "The pillars cannot be removed in room-and-pillar work without using some artificial substitute."

I have worked in the mines now for 24 years, starting as a trapper boy, and have filled every position except being steadily employed as a pumpman. I have seen some very extravagant work in respect to drawing back pillars, when much coal has been lost owing to the lack of practical experience on the part of the management. I have seen coal that could have been recovered by the use of proper means, but had to be abandoned because the men in charge thought, like Mr. Chance, that it could not be taken out.

I have worked in mines not far from where I am now employed in which we did not average more than 50 per cent. of the pillar coal, and to illustrate and show the difference in the results obtained when a proper system is employed, I will say that we are now taking out from 90 to 95 per cent. of all our pillars and entry stumps. In the mine where I am now working there is a very soft bottom, while the coal is overlaid with a massive roof that is hard to break. It would be impossible to draw back the pillars under these conditions were it not for the system adopted in these mines.

Briefly described, this is as follows: All entries are driven to the boundary line before any attempt is made to draw back the pillars. These are made of sufficient size and are allowed to stand until the last room on the entry is driven up to its limit. The work on the pillars in the rooms and entries is then started at the inby end and proceeds regularly on the retreating plan.

Our superintendent makes frequent visits to the mine and inspects the work to see how it is progressing. The mine foreman and myself are called into frequent conference with the superintendent. At such times he listens to our suggestions and explains his own ideas to us. He is a man who likes to study the suggestions of others and to adopt what is good and practical. He studies these suggestions from the standpoint of economy.

In closing, permit me to say, in reference to economy in mining, that if all superintendents would take the same interest in the daily operations in the mine as our superintendent manifests and would regard to the same extent the safety of their employees, better methods of mining would be adopted and greater economy result therefrom. J. B.

Chambersville, Penn.

Why Mine-Rescue Cars Ceased To Tour Illinois

In the issue of *Coal Age*, Jan. 1, p. 29, appears the following news item:

> Springfield—The state mine-rescue instruction cars have been called in and mine inspectors have been notified that this service will be discontinued until further notice. The cars have heretofore been sent to mining communities to give first-aid instruction. Rescue certificates were issued to miners who took the instruction. Now the miners who want instruction will have to go to the rescue stations. Lack of money for the purpose is the reason ascribed for the withdrawal of the cars. There are rescue stations at Springfield, La Salle and Benton.

I desire to correct the impression that this item would naturally convey, by explaining the reasons for the discontinuance of the mine-rescue instruction-car service.

The three Illinois mine-rescue cars were called in off the road one year ago, not through "lack of money for the purpose," as stated, but because three years' touring of the state, visiting mining camps for a prolonged stay of from three to six weeks, was resulting in no permanent organization of local first-aid teams or helmet crews. In many instances the cars had to be stationed on sidetracks at some distance from the town, making it inconvenient for the miners to visit them. Furthermore, the limited space on the cars did not permit either helmet work or first-aid instruction to be taught in a satisfactory manner, and halls had to be obtained in the town for teaching purposes.

Experience in helmet work had demonstrated to the commission the comparative uselessness of giving helmet training to men at mines where there were no helmets. As soon as the car left with its equipment of apparatus, the men for lack of apparatus had no opportunity to keep in training. Again, apparatus worn by a half-trained man or by one not in recent and constant training is not only dangerous to the wearer, but also to the men with him. No justification remained, therefore, for continuing these

tours of instruction and carrying helmets from place to place to train men who had no access to local apparatus after the cars had left the place. The equipment necessary to teach first aid can easily be carried about by instructors, who can cover their itinerary more rapidly by regular train than by arranging for the transportation and parking of special cars.

The commission felt that three years of educational propaganda should begin to bear some fruit for the money, time and effort expended. The three mine-rescue cars were therefore called in to their respective stations at La Salle, Springfield and Benton, and three local teams of five miners each were selected as mine-rescue teams. These men work in the mines, thus insuring their being in good, hard physical condition. They practice helmet work at least once, sometimes twice a week, being paid by the state for practice work and for services rendered at mine fires or explosions.

Three Substations Established

Upon petition from the miners and operators at Herrin, DuQuoin and Harrisburg, Ill., a substation was established at each place upon the understanding that the local miners and operators would encourage and maintain mine-rescue teams. A year's trial of volunteer teams demonstrated that, without a guaranteed regular rate of pay for practice work, a team could not be kept in existence and, without a dependable team, the substation with its equipment of apparatus was comparatively useless. A team of miners paid by the state was then organized at each of the substations.

As a result of this plan Illinois now has six state stations serving as centers for mine-rescue apparatus and trained teams, with first-aid instructors ready to go anywhere in the state to teach first-aid classes.

The commission fully realizes that the highest degree of efficiency possible in mine-rescue work can be reached only when each mining locality has its local teams of trained men familiar with the inside workings of the mines, and that this ideal condition can be brought about only by the fullest coöperation between the parties at interest, the miners and operators, in an honest endeavor to promote safety.

Thomas H. Devlin,
Chairman, Mine Rescue Station Commission.
Springfield, Ill.

Immigration in the Future

Letter No. 2—The letter on "Immigration in the Future," *Coal Age*, Jan. 1, p. 21, has interested me greatly, but I cannot agree with the suggestion that there will be an "unparalleled influx of foreigners to our shores" at the close of the European War. Since reading this article, I have been looking over the immigration reports for the past few years and am surprised to find that but a small percentage of those immigrants who are listed as having agricultural training or being farmers or foreign laborers find their way into the agricultural districts of our own country.

For example, in 1910 only 5 per cent. of the foreign-born males of 21 years of age and over, living in Massachusetts, were to be found in the rural districts. This fact is suggestive when it is known that 12 per cent. of the total immigration from 1899 to 1910 appeared in the reports as farmers or farm laborers. In 1914, out of a total immigration of 1,218,488, only 8.3 per cent. were reported as seeking to go to the great farming states of the South and West, while 60 per cent. of these immigrants went to the great industrial centers of New York, Pennsylvania, Massachusetts and Illinois.

The report for 1915 shows a decline of immigration, and in my opinion the great question is not so much the fear that this country will be flooded by an undesirable class of foreign labor but rather, How are the industries of this country to be maintained, in view of the growing demand for output of all kinds of products?

It is difficult to predict what will be the condition in regard to emigration to this country when the war is ended. There is no doubt that the enormous expenditures by foreign nations for the maintenance of the war will greatly increase the burden of taxation when the struggle is over, and to escape this burden many will flock to this country. On the other hand, it must be remembered that there will be great need of skilled men and laborers in those countries to rebuild what has been destroyed by the war, and no doubt large numbers of would-be emigrants will be induced to remain at home by the promise of good wages and plenty of work.

My conclusion is, therefore, that if foreign governments will make conditions which will be more congenial to their people they will be able to retain the most of them at home, and this will eventually cause a great decline in emigration to this country. It is true that many who have come here with great expectations have been disappointed and were only too glad to embrace the first opportunity to return to their own land. Others who have come without being deceived have remained, and many have become good citizens of the state.

Mystic, Iowa. William James.

Output of British Coal Mines

Letter No. 3—Reading the second editorial, in reference to British coal mines, *Coal Age*, Jan. 8, p. 88, which is entitled "The Methods of Our Cousins," and which discussed both the letter of William James, Dec. 18, p. 1026, and my own letter, Dec. 25, p. 1072, made me conclude that I had not conveyed my meaning clearly in my last letter when I stated, "In those mines all the coal is mined by pick, sledge and wedge, except in the nongaseous mines in the anthracite field." This statement gives the impression that the coal is undermined with a pick and brought down with a sledge and wedge, which is not the case.

In all my experience in the steam-coal mines of Wales I do not recall ever once undermining the coal. As stated in my last letter, the slips lie at an inclination of 45 deg. These slips occur in the formation every 10 in. to 2 ft. apart and, with the gas pressure in the coal, make the work of mining the coal an easy proposition. Moreover, there is almost always a layer of fine dust in each slip. The coal is brought down in large pieces with the bar or pick, while the sledge and wedge are used to break up the lumps that are too large for loading.

The use of a coal pan by the miner to carry his coal from the face to the car also needs a little explanation. The Welsh coal has a worldwide reputation for purity, the coal being hand picked by the miner, who is often paid extra for loading pure lump coal. The impurities and slack are thrown back into the gob.

The steam-coal mines of South Wales are all worked longwall up to 8 ft. in thickness, and the slack and impurities separated in the mine, together with the brushing and refuse from the roads and falls, are used for filling the gob. Even with the precautions taken in cleaning the coal, the operators have all the slack they need. They have never known the conditions that existed in this country (1909) when operators gave their slack away in order to get rid of it and in some cases paid $3 a car to have it unloaded, which in addition to the 54c. a ton paid the miner was a great loss. Even purchasers of slack, at times, demanded that the operator should pay the freight. Since that time, however, the introduction of the automatic stoker has solved the screenings problem in this country.

An Unworthy Suggestion

The suggestion in the editorial, p. 89, that it would have been better for the operator to ship a coal of less purity is unworthy of consideration, even allowing it was discovered that, for certain briquetting purposes, the buyer in Belgium, taking advantage of the law that allowed a larger percentage of ash in the product, added sand to the coal received. So long as the operator gets his price for the coal, he is not concerned with what becomes of it in the market. His aim and pride are to ship the coal in the best marketable condition.

Had the writer of the editorial been better acquainted with the character of the coal and the conditions in Welsh mines he would not have suggested the use of "high-grade, permissible explosives, such as are used in the United States." The coal in these mines is practically loose; and as I have mentioned, the slips follow each other so closely that the coal sounds hollow when rapped on the face. I have often taken a crowbar to pry out the coal from the next slip. Moreover, it must be remembered that the gas pressure in these mines is enormous. A hole drilled 12 ft. deep in the solid will often record a pressure of over 200 lb. per sq.in. It will be readily seen that the use of any kind of powder in the mining of this coal would not only be useless but dangerous, owing to the presence of gas and the fine dust that I have said almost always occurs in the slips.

Machines were tried in these mines, in driving narrow entries, but their use had to be abandoned owing to the coal falling on the machines. The only kind of machine that will ever be successful in the mining of this coal is one that will automatically convey the coal away as it falls. Compressed air is commonly used as a motive power underground for shaft-bottom pumps and small engines. Compressed-air plants are a common part of the equipment in these mines.

Again, reference is made editorially to the mines being "extremely warm and enervating." My experience in the mines of that region enables me to say that this statement is wide of the mark. The ventilation of Welsh mines is ideal, and it would certainly take a genius to improve the conditions in the mines in this regard. I worked for three years at one mine that lay at a depth of 1,524 ft. below the narrow valley in which the shaft was located. The surrounding hills were 1,500 ft. above the valley, which was so narrow that there was not level space sufficient for a football field, and the local team were obliged to play on top of the mountain. Lying at a depth of practically 3,000 ft. below the surface, the conditions were such as to make this mine enervating, and yet I never found it so, but always worked with flannel underwear, and in one place where I worked a year, I wore besides a cardigan jacket and a waistcoat while at work.

While on a visit to the deepest mine in South Wales at Treharris, which lies over 2,200 ft. below the surface, I found the same conditions to prevail in that mine. My experience was not limited to a locality, but extended from the center of the coal field to the anthracite coal. I found the anthracite coal worked so freely that I used the same pick for a period of six weeks to dig the coal and brush the roof for 14 in. In this brushing there were two layers of quartz each ¼ in. thick.

The references in the editorial to H. Stanley Jevons, professor at the South Wales University, and M. Taffanel, a French engineer who made an inquiry into an English explosion, are of no importance, since the "insufficient ventilation" that they mention as existing in certain places and on certain occasions can be duplicated in many mines in this country. References to such eminent authorities as Prof. William Galloway or T. Forster Brown, who are well-known authorities on South Wales mining conditions would have been more to the point.

In regard to the railroad cars being of small capacity (10 tons), it must be remembered that coal operators in Great Britain build their own cars, and a larger tonnage would mean increased expense with no advantage resulting to them, as the small cars best suit their conditions. This makes a different proposition from what exists in this country where the railroads own and furnish the cars. I surmise that if our operators had to build them there would be few 40-ton cars in use.

Comparison of Welsh and Illinois Mines

In closing permit me to say that my 13 years' experience in South Wales—which was mainly in the deepest mines, both in flat and pitching seams and in thin seams 22 in. in thickness to others where the coal is 9 ft. high—enables me to state that there are no mines to my knowledge in this state of Illinois that can compare in any way with the mines in South Wales, either in respect to equipment or the efficiency of ventilation. A reference to "authorities" may satisfy some, but I am like the man from Missouri, who must be shown.

It is reasonable to suppose that European operators are as eager to reduce the cost per ton and to increase the output of their mines as their American brothers. It is well known that the American miner's average daily production far surpasses that of the European miner; but owing to the difference of conditions, over which they have no control, there is no comparison between them. Again, the fortunes invested in the development of those mines require that everything should be done that is possible, in order to secure the best results.

The efforts put forth for the education of the mining classes in Great Britain show that coal operators are awake to their responsibilities. In the conduct of mining classes the salaries paid and the equipment furnished, exceeding as they do the outlay for the same items in this country, are evidences of the high regard in which the education of miners is held. It may be said, also, that the mining laws of Great Britain are more strictly enforced and obeyed than those in this country.

W. L. Morgan,
East St. Louis, Ill. Former State Mine Inspector.

Inquiries of General Interest

Fan Ventilation

I do not understand the answer to the last question on page 1076, *Coal Age*, Dec. 25, which states that the speed of a fan will be reduced when the air is short-circuited by opening the division doors at the shaft bottom. It does not seem to me that this will work out in practice. What checks the speed of the engine when the mine resistance is cut out by opening the door and the load on the fan is thus reduced? Without a good governor, it seems to me that the engine would run away under the lighter load. S. D. HAINLY.

Allport, Penn.

As stated in the previous answer, when the door is open, the resistance of the mine being cut off, a larger volume of air rushes through the fan and the frictional resistance within the fan is greatly increased. The work thus absorbed by friction is lost, and this leaves less power effective for turning the fan, which runs slower under those conditions. This has been tried many times in practice. For the same power applied to the fan shaft, the speed of the fan will be less as the resistance is less. In other words, the same power will drive the fan faster as the resistance is increased.

Accident in Electric Blasting

I will be glad if some reader of *Coal Age* can throw any light on the cause of the following accident:

At a shaft recently sunk in Pennsylvania, which was at the time of the accident about 450 ft. deep, a round of holes had been charged with 40-per cent. dynamite. Electric detonators were used altogether for blasting. After having connected up the holes at the bottom of the shaft, the sinkers were hoisted to the surface and the final connection was then made with the battery at the top of the shaft. When all was ready, the shots were fired, and it was supposed that all of these were exploded.

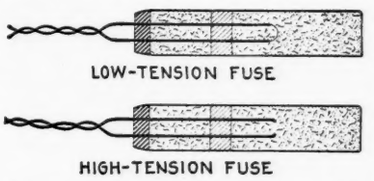
The wires having been disconnected from the battery, the sinkers were again let down the shaft. A few seconds after they reached the bottom, one of the shots let go, killing one man outright and injuring another so severely that he died shortly afterward in the hospital.

In all my experience with dynamite and caps I have never known an accident of this nature to occur. I have been under the impression that it would be impossible to happen in electric blasting. In the use of fuse and caps for firing shots it is of course different, as we all know. I have seen a comparatively short piece of fuse hang fire for hours and the shot suddenly explode when least expected. When wires are used to connect the battery with the shots, however, I cannot see how it is possible for an explosion to take place after the current is cut off by disconnecting the wires from the battery. This, to my mind, is a strange occurrence, and I would be glad to hear of similar instances that may have occurred in the experience of others. Perhaps some reader of *Coal Age* can explain what, in his opinion, is the possible cause of such an occurrence. It may be the means of preventing a similar disaster elsewhere. This was a wet shaft.

Houston, Penn. J. T. REYNOLDS.

It is not an uncommon experience for shots to misfire when electricity is used to explode the detonator, although this does not occur as frequently as in the use of fuse or squibs. In electrical firing the causes of misfire are not as fully understood as could be desired, but experience has shown that at times the electric current may fail to explode the detonator, or this not being the case, the explosion of the cap may not be of sufficient force to cause the explosion of the dynamite. The charge, however, may be ignited and the combustion thus started develop into an explosion shortly afterward. This would seem to be the most probable cause of this accident.

As is well known, there are two general types of electric fuses, known as the "low-tension" and "high-tension" fuses. As shown in the accompanying figure, in each of these fuses copper wires are embedded in the fulminate of mercury contained in the cap. In the low-tension fuse the inner ends of the two wires are connected by a platinum-wire bridge. The passage of the electric current renders this platinum bridge incandescent, whereby the fulminate is ignited and explosion follows. In the high-tension detonator there is no platinum bridge connecting the two wires, but their ends are brought close enough together so that a spark jumps this interval when the current is turned on. The passage of the spark ignites the fulminate.



In the early manufacture of these detonators much trouble was experienced from misfires, owing to the accidental breaking of the platinum-wire bridge of the low-tension detonator or the misplacing of the ends of the wires in the high-tension detonators so that no spark passed between the wires. These troubles have largely disappeared in the present improved methods of manufacture. Low-tension detonators are often preferred because they permit of testing each detonator immediately before it is used. The test is made with a galvanometer and a small portable battery capable of passing a weak current through the detonator, which reveals at once whether the bridge is intact or broken. It is impossible to test the high-tension detonator in this manner.

The important feature of electric firing is the use of a detonator of sufficient strength to cause the complete explosion of the dynamite charge. The use of an understrength detonator is probably responsible for more accidents in blasting than any other cause. Also, the perfect insulation of the wires connecting the charge with the battery is of the highest importance. We shall be glad to have this important subject thoroughly discussed by those whose experience will be of interest to all.

Examination Questions

Iowa Engineers' Examination, Des Moines, Nov. 9-10, 1915

(Selected Questions)

Ques.—What is the code of signals established by law in Iowa?

Ans.—Sec. 32 of the Iowa mining laws (1915) gives the following code of signals: One ring or whistle—hoist coal or empty cage, also stop cage if in motion. Two rings or whistles—lower cage. Three rings or whistles—men are ready to come up; engineer gives one ring or whistle as return signal, and then men enter cage and one ring or whistle is given to hoist. Four rings or whistles—hoist slowly, danger. Five rings or whistles—accident in mine; get stretchers and supplies. Six rings or whistles—reverse the fan.

One ring or whistle given by engineer signifies he is ready to hoist cage on signal from below. Two rings or whistles given by engineer ask the bottom man or cager to bell away an empty cage, which is hoisted on one ring or whistle given from the bottom. The law provides for the further addition, with the consent of the mine inspector, of any signals deemed necessary for the efficiency of the mine or safety of the employees, but requires that such additional signals shall be posted for the information of engineers and employees.

Ques.—(a) Define horsepower. (b) How do you determine the capacity in horsepower for a given size of pipe for a simple engine?

Ans.—(a) In steam engine practice a horsepower is estimated as 33,000 ft.-lb. per min., which is the power required to raise a weight of 33,000 lb. through a vertical height of 1 ft. in 1 min. or 1,000 lb. through a vertical height of 33 ft. in 1 min.

(b) This question, as it reads, is unintelligible. It is probably intended to ask, How do you determine the size of pipe required to supply steam for a simple engine of a given horsepower? The consumption of steam by a simple engine is commonly estimated as 30 lb. per hp.-hr. In order to estimate the size of pipe required to supply this weight of steam to an engine each hour, it is necessary to know the gage pressure under which the engine is to be operated, which determines the volume of steam per pound, as given in steam tables. Then, knowing the volume of steam required per horsepower, it is common practice to assume a velocity in the live-steam pipe of 6,000 ft. per min., which, divided into the volume of steam required per horsepower per minute, will give the sectional area of the pipe in square feet. This must be multiplied by 144 to reduce to square inches, and the required diameter of the pipe is then calculated from the sectional area in the usual way.

For example, assuming a simple engine requires 30 lb. of steam per horsepower-hour and is operated under a gage pressure of, say, 80 lb. per sq.in. at sea level, making the absolute pressure supported by the steam 95 lb. per sq.in., the volume of the steam as taken from steam tables (Marks and Davis) is 4.65 cu.ft. per lb. This makes the volume of steam to be supplied to the engine 30x4.65 = 139.5 cu.ft. per hp.-hr. Now, assuming 100 hp. in the engine, the sectional area of the pipe is

$$A = \frac{100 \times 139.5 \times 144}{60 \times 6{,}000} = 5.58 \; sq.in.$$

The diameter of this pipe is

$$d = \sqrt{\frac{5.58}{0.7854}} = 2.67, \; say, \; 2\tfrac{3}{4} \; in.$$

Ques.—What advantage does a flue add to a boiler?

Ans.—It increases the heating surface of the boiler and furnishes an additional passage for the escape of the smoke and gases of the furnace.

Ques.—How can the horsepower of a boiler be figured roughly?

Ans.—The horsepower of a boiler is estimated roughly from its heating surface, according to the particular type of boiler in use. Thus, a plain cylindrical boiler requires from 6 to 10 sq.ft. of heating surface per horsepower; a horizontal flue boiler, from 8 to 12 sq.ft. of heating surface per horsepower; a horizontal tubular boiler, from 14 to 18 sq.ft., etc.

Ques.—What is the real measure of the horsepower of a boiler?

Ans.—The true measure of the horsepower of a boiler is the weight of water evaporated in pounds per hour. This weight multiplied by the special factor of evaporation and divided by 34.5 will give the true horsepower of the boiler.

Ques.—Compare steam-engine hoisting to electric-motor hoisting and explain the advantages of each system.

Ans.—The comparative advantages of these two methods of hoisting will depend largely on the style of equipment at the mine and the size of the operation. Generally speaking, it may not pay to make an electrical installation for the purposes of power and lighting in a small mine with limited capital and possibilities of development. But in the operation of a large mine an electrical installation is ideal, both with respect to economy and simplicity of operation.

In general, where a mine is electrically equipped to supply power and lighting underground, the maintenance of a separate power plant to supply steam for hoisting and ventilating is an unnecessary additional expense. An electrical hoist should always be used in that case. Also, where electricity can be obtained from a supply line, an electrical hoist can be operated at a less cost for maintenance and repairs than a steam hoist. An electrical hoist is more reliable and requires less intelligence on the part of the engineer or motorman charged with its operation. The objection is sometimes made that the engine room of an electrical hoist is cold in winter, but this can be readily overcome by supplying the required heat. The engineer in charge of an electric hoist should have sufficient mechanical ability and skill to enable him to grind down a commutator when necessary.

Coal and Coke News

Washington, D. C.

The House Committee on Mines and Mining has under consideration a bill to provide for a commission to codify and suggest amendments to the general mining laws, which has just passed the Senate. The measure was originally Senate bill No. 52 and created a commission of three members, two of them to be lawyers of experience in mining law and the third a mining engineer with experience in the operation of mines.

The commission is directed to prepare for the information and use of Congress a tentative code of laws providing for the location, development and disposition of mineral lands and mining rights in the lands of the United States, including the Territory of Alaska, such as will be best adapted to existing conditions and correct defects or supply deficiencies in existing general mining laws.

The members are to receive $500 a month and the sum of $25,000 is appropriated to meet expenses, including outlays for traveling.

The bill further provides:

"Sec. 3. That the commission shall hold public hearings in the principal mining centers in the western United States and Alaska; invite and receive suggestions and opinions bearing upon or relating to existing mining laws or desirable amendments thereof; and may also consider the laws and experience of other countries with respect to disposition and development of mines and minerals.

"Sec. 4. That within one year after the passage of this act, at which time the said commission shall expire, it shall submit to the president full report as to its operations, conclusions, and recommendations, including in or transmitting with said report a tentative code of mineral laws, as provided in section two hereof, and within 30 days from receipt thereof the President shall transmit the same to Congress with his recommendations."

This measure is identical with that passed by the Senate about a year ago.

The House of Representatives has likewise passed, on Jan. 15, the Ferris bill (H. R. 406), providing for the leasing of coal, oil, gas and sodium lands on the public domain. This bill was introduced early in the session and is similar to measures on the same topic that have been presented at recent Congresses. The Ferris bill is reported to have strong support in the Senate and the fact that it is still so early in the session is believed to afford good expectation of some action regarding it.

HARRISBURG, PENN.

The joint conference of anthracite miners and operators in New York will endeavor to draw up a contract that will affect more than 175,000 workers. February 10, the date fixed for the conference, was suggested by the operators. It was pointed out here that the fixing of the early date for this conference indicates a desire of both sides to reach an agreement before Mar. 31, when the present contract expires. There is a chance, however, of a slight delay in starting the anthracite negotiations, as it is stated, the Mobile conference of Feb. 1 is contingent on the miners getting through with their convention before that date, and the beginning of the hard coal meetings depends upon the length of the Mobile conference. President White is expected to attend both conferences and may have to divide his time between the two meetings. It is probable the anthracite meetings will be held only when he is present.

There is considerable speculation here as to who will be the leader of the anthracite coal operators in the negotiations since George F. Baer, head of the Reading Co., who always directed the affairs of the anthracite operators in their negotiations is dead.

The demands of the anthracite miners were formulated last fall and will receive the approval of the convention now being held at Indianapolis. A 20 per cent increase in wages, and the check-off are among the demands they have drawn up and will present to the operators.

A scale for the bituminous fields of the state will probably call for at least 10c. a ton increase in wages. Some expect an increase all the way from 5c. to 20c.

Two years ago the miners in the western part of the state demanded an increase of 5c. a ton and a 10 per cent increase for day labor, yardage and dead work. The mine-run basis of payment, check-off and a uniform day and wage scale for all classes of day labor are among other things that are expected to be asked for this year.

There is also a likelihood that a two-year agreement will be demanded. The anthracite miners are also asking for a two-year agreement, so that both contracts, if made for that term, will expire at the same time.

Complaint of Discriminatory Rates

The Pittsburgh Coal Operators' Association on Jan. 20 filed with the Public Service Commission complaint against the Pennsylvania R.R. lines west, charging unfairness of rates to Philadelphia, Newcastle and Erie. It was also charged that the railroad company discriminated against some mines and favored others.

The Commission will ask the Pennsylvania Railroad Co. for an answer to the complaint, and will then give a hearing, probably in February.

The Atlantic Refining Co., of Pittsburgh, Philadelphia and Scranton, has also filed with the Public Service Commission complaint against the Pennsylvania R.R. for increasing rates on coal carried from Stoneboro to stations on the Franklin division from 30c. to 45c. a ton.

Arrangements have been made by the Commission for a conference to be held with the Pennsylvania Railroad Co. and the bituminous coal operators and shippers on the protests made against the company's rule that cars would not be supplied for loading of coal from wagons. Many operators have protested that the rule would hamper them in shipping because mines are not all equipped with sidings and tipples.

The Docket to Be Cleared

Steps to clear the dockets of the Dauphin County Court of all suits brought by the state for recovery of anthracite coal tax under the act of 1913 will be taken before the end of the month. There are about 70 pending, in all of which verdicts will be taken for the defense, the state having lost the test case. Pending some legal action the auditor general will assess the tax under the act of 1915, which has not been tested in the courts.

Disobedience is An Adequate Cause for Discharge

Miners discharged for violations of orders and not through discrimination because of membership in a labor organization cannot claim reinstatement. This is the substance of a decision rendered by Charles P. Neil, of Washington, D. C., umpire of the Anthracite Conciliation Board in the case of John Burhock, who lost his position with the Philadelphia & Reading Coal and Iron Co. on Dec. 13, 1913.

Burhock was employed on a night shift in robbing pillars. He was directed on going to work to stand timbers in the "monkey gangway" before loading any coal, the timbers previously placed having fallen. Instead of doing this he loaded out 11 cars of coal and stood but one set of timbers. His defense was that the coal spilled from the pillar and that it was necessary to remove it before the timber could be placed. This was denied by the officials and the man who worked on the day shift, and they united in declaring his action had made conditions more dangerous.

The conclusion of the decision holds that Burhock had not shown he was discharged without cause and his request was refused.

PENNSYLVANIA

Anthracite

Scranton—The Delaware & Hudson Co. in its coal department has sent out notices to all of its salaried employes that from now on if they are discovered entering, leaving or congregating in places where liquor is sold that it will be sufficient cause for immediate dismissal.

Centralia—Officers of the Lehigh Valley Coal Co. has started reorganization of the fire companies stationed at the various collieries of this region. The companies have been well drilled, but in the future a higher standard of service will be required. Efficiency Engineer John Lloyd is in charge of this work, and the notices announcing the decision of the company have been posted at the various mines.

Wilkes-Barre—Representatives of the Wilkes-Barre Anthracite Coal Co. have agreed to repair at once the damage that has been done to streets as the result of the cave over its workings, which caused gas, water and sewer pipes to break. The ground gradually settled to the depth of 5 ft. Consider-

able water from the mains found its way into the Smith Colliery workings. The greatest damage is probably to the mine itself.

Edwardsville—The strike of 1,200 employes of the Kingston Coal Co. came to an end when General Manager F. E. Zerbey agreed to meet the general grievance committee and adjust whatever differences there might be. It was stated that the men have about 14 grievances to take up with the company officials. Chief among the grievances of the men is said to be the handling of the physical examination clause of the workmen's compensation act. The men claim that two strong and perfectly able-bodied men have been rejected by the medical examiner. And this constitutes a grievance.

Shenandoah—The suit of the Home Brewing Co. has been given an interesting turn by the fact that the ground in the vicinity of the brewery has developed several large cracks. It was in anticipation of such damage that the company had some time ago instituted suit against the Girard Estate and the Thomas Colliery Co. for removing pillars in the old workings beneath the streets.

BITUMINOUS

Jenner—Inmates of a tenement owned by the Consolidated Coal Co. were forced to flee into the rain on Jan. 23 when the large structure took fire in some way. The building was completely destroyed. The origin of the fire is not known. The miners and their families are being cared for by neighbors.

Ebensburg—Local coal operators are compelled to sit by helplessly and listen to quotations of from $2.50 to $3 because they cannot get the cars to handle their output. The car shortage is getting worse and one mine which has a capacity of 7 cars per day received but 8 steel hoppers the past week.

Connellsville—Coal valuations in Fayette County have been increased $50 an acre by the county commissioners, who contend that coal is more valuable today than ever before. The Connellsville vein, consisting of about 13,000 acres, has been advanced from $650 to $700 an acre; the Pittsburgh vein, 65,000 acres, from $550 to $600, but the Springhill vein, 500,000 acres, has been allowed to remain at $250 an acre. The new valuations are for taxation purposes for the next three years.

The demand for coke has now become greater than ever but the handicaps upon its manufacture and delivery have multiplied recently. Foreign holidays, cold weather and shortage of cars have rendered it impossible for the coke manufacturers to push their business as they would like. The production for the week ending Jan. 15 was 425,521 tons, of which 171,927 tons came from merchant operators and 248,594 tons from furnace interests.

Uniontown—The routine matters connected with the rejuvenation of the Coke Producers' Association were discussed at a recent meeting of the independent coke producers.

McGovern—The Allison Mines of the Pittsburgh Coal Co. are about to be reopened after an idleness of several years. These mines are said to be the oldest in Washington County, having been opened in 1871. The Pittsburgh Coal Co. acquired the property several years ago.

Johnstown—An explosion of 20 sticks of dynamite and about 75 lb. of powder in a magazine of the Argyle Coal Co. at Southport recently, destroyed the magazine and did more or less damage to windows in the town. A Pennsylvania train just entering Southport station was shaken and many windows were broken. The cause of the explosion is unknown. Approximately 100 lb. of permissible powder stored in the magazine did not explode.

Fayette City—Two men were seriously burned while 19 others were less severely injured while riding into a mine in "dilly" cars when the car containing the miners' individual boxes of powder exploded in the Apollo mine, commonly known as the Jutte mine, recently. The two men injured were severely burned around the face and body, their clothes being entirely burned off.

MARYLAND

Frostburg—The Consolidation Coal Co. has a large force of men at work at Vale Summit reopening the old mines there which have been closed for 35 years or more. These mines were compelled to close on account of a fire which started in the inside workings and which at that time it was impossible to put out. An effort is now being made by a system of walls and brattices and other later-day scientific methods to smother the fire. If this can be accomplished, much valuable coal which would otherwise be lost can be reclaimed, mined and put on the market.

Cumberland—It was announced on Jan. 18, effective Jan 15, that the Colsolidation Coal Co. in the Georges Creek region granted a voluntary increase in wages to miners of 2½c. a ton. They will receive 68c., while the day laborers have been increased 10c. a day. There was no formality in giving the advance, notices not even being posted. The miners were informed orally through their foremen. Other companies in the region generally will follow suit. There is much new development in this field.

WEST VIRGINIA

Charleston—Twenty-one deaths in the mines of the state from accidents were reported to the Department of Mines for the month of December, 1915. In the corresponding month of the previous year 29 deaths occurred. Chief Henry in his report remarked upon the decrease of fatalities attributing the cause to more care being exercised on the part of miners and operators and all connected with the mining industry.

Bluefield—Coal operators of West Virginia have come to regard first aid as a necessity instead of a luxury. This statement is made in an article contributed by Dr. G. C. Merriam, published in the current issue of the West Virginia "Medical Journal." The author states that the operators of West Virginia have come to look upon first aid as a justifiable expense added to the cost sheets.

Logan—The Island Creek-Superior Coal Co., with newly opened operations on Main Island Creek, shipped its first car of coal on Jan. 19. Its output will be marketed by the Wyatt Coal Co.

KENTUCKY

Whitesburg—It is stated here that the various Elkhorn Mining Corporation mines at Hemphill are to resume operations on full time after lying idle for 18 months.

Frankfort—Legislative matters are attracting much of the attention of the coal interests of Kentucky at this time. Aside from the workmen's compensation bill there are several other measures which would have a direct bearing on the mines. The usual bill to prohibit mine operators and other corporations from employing armed guards is before the assembly. Senator S. B. Huntsman has introduced a measure stipulating the manner of division of coal where mined from leased land; Senator B. C. Lewis has a bill which would call for certificates for mine foremen and fire bosses: Representative Bays is fathering a measure relating to inspection of scales and weights at mines. Another matter before the assembly is a project which seeks to divide Pike County and to create a county to be named after Gov. Stanley.

OHIO

Bellaire—The men who are working in the Fort Pitt coal mine have penetrated a distance of half a mile. Water here stops further progress. Only a small force of men is being worked until the water may be pumped out.

Columbus—The sliding of the side hill over the railroad of the Piney Fork Coal Co. in Jefferson County, Ohio, has delayed loading of coal at its stripping operation. It will be necessary to build another railroad.

Nelsonville—The Sunday Creek Co. is continuing the removal of property and equipment at its plants in this vicinity for shipment to other points, presumably in West Virginia. The company store here has been dismantled and closed.

INDIANA

Washington—With two mines out of operation on account of accidents and inability to get coal from the south on account of the condition of the C. & E. I. Railroad, a coal famine is threatened here.

Brazil—Operators of the Brazil block coal field have reorganized and elected officers as follows: President, J. H. McClelland; vice-president, W. M. Zeller.

MICHIGAN

Auburn—The Black Diamond coal mine, owned by the Robert Gage Coal Co., has been abandoned because of the flood which inundated it recently. The rich coal measure, however, will not be abandoned and a new shaft will be sunk in the spring.

ILLINOIS

Hillsboro—The Hillsboro coal mine has resumed operations after a shutdown of a week for repairs to the shaft. The damage was caused by one of the cages tearing out part of the timbers.

Belleville—A jury in the Belleville Circuit Court, believing that the Kolb Coal Co. had failed to provide a sufficient number of props in a portion of its mine at Mascoutah, gave a verdict for $6,000 in favor of Andrew Letz for injuries received in a fall of coal attributed to the lack of props. Letz's collar bone and kneecap were fractured. He sued for $10,000. A motion for a new trial has been made.

Edwardsville—The Northwestern Railroad is taking all the output of the several large mines north of Edwardsville, about 22,000 tons a day, and giving coal trains right of way to Chicago and the Northwest, where the coal is being distributed and stored. None of the output of these mines is permitted to be placed on the market.

Coffeen—The Clover Leaf mine has resumed operations after a shutdown of several weeks, which, it was feared for a time, would be permanent. There was difficulty in closing a deal for coal land the company needed, both for the sake of the coal underlying it and in order to reach other holdings of the company lying beyond.

Cherry—Miners of Cherry, where more than 200 miners were killed in a mine disaster in 1909, have given a striking evidence of gratitude for the relief work of the American Red Cross following the mine disaster. Now, after nearly seven years, they have sent to American Red Cross headquarters $3,000 to aid the organization in relief work in Poland.

O'Fallon—The International Coal and Mining Co. has leased from the receiver the Taylor mine at O'Fallon. This mine has not been operated since last February, when the Taylor Coal Co. went into bankruptcy.

WYOMING

Frontier—After an idleness of somewhat over a year the No. 1 mine of the Kemmerer Coal Co. recently resumed operations. About 40 men are now employed. A strong demand is now coming for coal and especially the railroads are using a large amount while the prospects for the continuation of the demand are good. Mining companies are having trouble in finding men to produce coal, and are taking on employees as fast as possible. The conditions in the coal camps at present are better than for the past two years, with good prospects for the future.

PERSONALS

Grenville Lewis resigned his position as superintendent of the R. C. Tway Mining Co. operation at Anchor, Ky., effective Jan. 1 last.

Chas. H. Dayton has been appointed general agent of the Skelle Coal Co., with offices at No. 90 West St., New York City; appointment to be effective Feb. 1, 1916.

James Heatherman, former superintendent of the Main Island Creek Coal Co., has resigned his position to become general manager for the Low Ash Coal Co. Both of the above-named firms operate in West Virginia.

Andrew K. Morris has been appointed coal freight agent of the Erie R.R. with office at 50 Church St., New York. Charles H. Horrell has been appointed assistant coal freight agent for the same company with office at the same address.

George S. Rice, chief mining engineer of the Bureau of Mines, formerly of Pittsburgh, Penn., has changed his address to Washington, D. C. All business communications should, therefore, be addressed to him in care of the Bureau of Mines at Washington.

Cadwalader Evans has charge of the machine mining for the coal department of the Delaware & Hudson Co. He is a graduate of Lehigh and his last position before coming with the Delaware & Hudson was that of general manager of the Acadia Coal Co. of Nova Scotia.

Michael J Ryan, former city solicitor of Philadelphia, was appointed a member of the Public Service Commission on Jan. 22 by Governor Brumbaugh. Mr. Ryan has accepted the appointment and will take the place vacated by Thomas B. Smith, who was elected Mayor of Philadelphia.

Dr. F. E. Bodkin, of Berea, Ky., is in Hazard, Ky., making arrangements for the establishment of a hospital to serve the mining population in that section. It is stated that the project is making good headway and that the town is supporting it. A hospital has been needed for some time.

R. J. Gould, of Huntington, W. Va., will, about Feb. 1, assume the position of chief engineer for five large coal operations in the New River field. These include the Louisville Coal & Coke Co., the Goodwill Coal & Coke Co., the Kimball Coal & Coke Co., the Greenbriar Coal & Coke Co., and the Devil's Fork Coal & Coke Co.

John Caldwell has been elected a member of the Board of Examiners for mine inspectors, mine foremen and hoisting engineers of Iowa, succeeding George Allan, of Jerome, Ia. Other members of the board, reelected by the state executive council, were Edward Gray, Des Moines; H. W. Ladd, Madrid; T. L. Evans, Lockman, and David Anderson, Bidwell.

W. G. Polk, secretary and treasurer of the Reliance Coal & Coke Co., with headquarters in the Union Trust Building, Cincinnati, has become sales manager of the Hazard Coal Co., of Hazard, Ky., which office he will fill in connection with the Reliance company. The Hazard mines are now producing 1,000 tons daily and will increase their capacity.

John M. Roan, chief deputy and safety commissioner of mines in Ohio, filed his resignation with the Ohio Industrial Commission recently, to become effective Feb. 1. The resignation was accepted by the commission. No successor has been named, although James H. Pritchard, secretary of the Hocking Valley Operators' Association, was nominated for the position.

J. L. Hughett, an attorney of Knoxville, Tenn., has accepted the position of general manager of the Stirling Coal Co., operating at Daniel Boone, near Nortonville, Ky., on the Illinois Central R.R., succeeding J. L. Montgomery, president and general manager, recently killed in an automobile accident. Mr. Hughett has not yet decided whether he will locate at Nortonville or Louisville. John Hughett, of Daniel Boone, Ky., is superintendent of the company.

Joseph A. Jeffries, manager of the Kerens-Donnewald Coal Co., received serious injuries when an Illinois Central train crashed into an Illinois traction system parlor car, on which he was a passenger, at Springfield, Ill., recently. His right leg was cut off below the knee, his left ankle was crushed, and there were indications that his skull was fractured. He was pinioned in the wreck under a beam and jacks had to be used to release him. He was taken to a Springfield hospital.

Milton R. Evans, fireboss at Nottingham No. 15 colliery of the Lehigh and Wilkes-Barre Coal Co., for the last two years, and principal of the vocational night school for mine workers of Plymouth, has resigned his position with the coal company named to accept one of greater remuneration and larger responsibilities as mine inspector. Ten insurance companies, which carry a large amount of indemnity insurance for coal companies in Pennsylvania, have engaged the services of Mr. Evans to look after their interests in and about the collieries in the anthracite region. Mr. Evans is a graduate mining engineer and has filled every position in and about coal mines from picking slate to mine foreman, and possesses all the necessary qualifications for the station. He is the son of Thomas R. Evans, former general superintendent of the Parrish Coal Co.

OBITUARY

David C. Hughes, 54 years old, died on Jan. 20 at Shenandoah, Penn. He was general inside superintendent of the Phœnix Park collieries and a mine expert of note.

Charles Elliott, 47 years of age, superintendent of the Ella Mines of the Pittsburgh Coal Co., at Webster, Penn., was recently killed when he was caught between a coal car and the rib. He had been superintendent of this mine for three years. He leaves a wife and four children.

John B. Law, a pioneer mining official, died at his home in West Pittston, Penn., recently, after an illness of several months. Mr. Law was born in Archbald, Penn. He was a graduate of Lafayette College and for some time was in charge of the Delaware, Lackawanna & Western mines in the locality of Pittston. Later he became superintendent of the Pennsylvania Coal Co. He retired from business about six years ago.

A. E. Bradbury, one of the pioneers of Uinta County, Wyo., died recently in Evanston. Mr. Bradbury came to Wyoming shortly after the close of the war, accepting a position as superintendent of the stage company which operated between Bryan and South Pass. Later he served as treasurer of Sweetwater County, after which he moved to Montana, engaging in the stage business and later in the raising of live stock. About 1886 he returned to Wyoming, locating in Evanston. For about 15 years he was superintendent of the Rocky Mountain Coal Co. He is survived by his wife and three sons.

John Parry, Civil War veteran and mining man of wide reputation throughout the anthracite field, died Jan. 23, at his home, aged 74 years, of general debility. He was born in Wales and came to America with his parents when was two years old, the family settling in the Schuylkill region. He enlisted in 1862 in the 129th Pennsylvania Volunteer Infantry. A few years after the war he went to Wilkes-Barre and for many years was general manager of the W. G. Payne & Co. collieries and the Red Ash Coal Co. Mr. Parry is survived by six children. His wife to whom he had been married for 49 years died in 1913.

INDUSTRIAL NEWS

Alton, Ill.—Farmers in this vicinity are buying their coal on the jackpot plan. They "chip in" and buy a carload of coal at the mine and have it shipped here. Then each farmer hauls away his share of the shipment.

Duquoin, Ill.—Trustees of the estate of the late Henry Horn, Sr., coal operator and president of a private bank, which failed for $350,000, will soon pay a first dividend of 20 per cent to depositors. The depositors will eventually receive about 45 per cent.

Pittsburgh, Penn.—It is said that arrangements are under way for the shipment of considerable quantities of coal from the Pittsburgh district to Holland and to Scandanavian ports. It is understood that these shipments are to be made to ports in northern Europe not affected by the war.

Washington, D. C.—Increased rates on bituminous lump coal in carloads from Colorado and Wyoming mines to points in Nebraska and Colorado on the Union Pacific R. R. were disapproved Jan. 19 by the Interstate Commerce Commission. The proposed increases were from 10c. to 75c. per net ton.

Washington, D. C.—The Pittsburgh Coal Operators' Association recently filed a report with the Interstate Commerce Commission against the Pennsylvania and other railroads charging that the rate of 78c. per ton on lake cargoes of coal from Pittsburgh to Ashtabula, Ohio, is unreasonable, and asking a revision.

Des Moines, Ia.—The Chicago, Anamosa & Northern R.R., which ceased operations last November, operated a train on Jan. 19 to deliver coal to towns where residents have been suffering for lack of fuel. The order for the one-day schedule was issued by the receiver, who says the road does not pay operating expenses

Philadelphia, Penn.—The recent cold weather, the most severe of the winter so far, has added to the difficulty of car movement in this territory due to the fact that many shipments of coal have been frozen practically solid and in many instances it has required some concerns as much as two days to unload a single car.

Rome, Italy—In spite of the cold weather, Italy is a country almost without coal fires. The only smoke to be seen is that from railroad locomotives, factories and a few hotels. Coal is beyond the reach of any except the most wealthy. American coal lies unsold at the seaports. On account of high freights, anthracite costs more than $40 a ton.

Cleveland, Ohio—The Pennsylvania R.R., after prolonged negotiations with many builders, has placed an order for 5,000 cars. The Cambria Steel Co. is to make 3,000, and the Ralston Steel Car Co., Columbus, Ohio, 2,000. The Southern Ry. is also asking for figures on 1,000 box cars. The cars are to replace old equipment and to increase facilities to meet the demands of increased traffic.

Philadelphia, Penn.—The New York Shipbuilding Co. at Camden has received another order from the Darrow-Mann Co., of Boston, for a 9,000-ton coal-carrying steamer, to be delivered within 21 months. This is the third order received by the above company for coal-carrying vessels from the Boston firm, the largest ship to have a capacity of 12,600 tons, all of which are now in the process of erection.

St. Louis, Mo.—There is great activity in the Illinois mining field adjacent to St. Louis. All the mines are working to their fullest capacity, including not a few which have been closed for a long time. Of the 75,000 mining workmen in the state about 14,000 are employed in St. Clair, Madison and Macoupin counties. There are 52 mines in St. Clair county, employing 3,950 men; 38 in Macoupin county, employing 6,100 men, and 24 in Madison county, employing 3,980 men.

Seattle, Wash.—That efforts will be made to have the Alaska coal fields in shape to be operated under leases next spring is indicated in the announcement of George Watkin Evans, who has made a number of examinations of the Alaskan fields for the government. The final draft of the rules and regulations under which the leases will be made will shortly be submitted. The preliminary report which divided the fields into workable units has been approved by the department.

Washington, D. C.—Representative John J. Casey has introduced a bill in the House providing for the transfer of the Bureau of Mines from the jurisdiction of the Department of the Interior to that of the Department of Labor. It is the contention that under the direction of the Department of Labor the Bureau would be naturally conducted more with a view to the lives, health and protection of the mine workers in this country than for scientific research and exploration which takes precedence under the present system.

Barbourville, Ky.—Coal-mining plants representing an aggregate investment of nearly $1,000,000, according to reports, are being established in newly opened districts of Harlan County where the Clover Fork district is rapidly becoming the center of mining activity. Two new plants representing an expenditure of $200,000 each are being established and others will follow if the proposed extension of the Black Mountain & Wasioto R.R. from Benham through Harlan County into the Lee County, Virginia, field is constructed.

Charleroi, Penn.—Within the next few months a new coal mine to have an ultimate capacity of 3,000 tons per day will be opened by the Warner Leonard Co. if present plans are carried out. This mine will be opened as soon as present workings of the company at West Brownsville Junction have been worked out. It is expected that this will be within the next few months. Already rights of way have been secured for the connecting railway. The coal will be brought by way of the Maple Creek Valley to the railroad and river for shipment.

Harrisburg, Penn.—Fatal accidents in the anthracite region of the state in 1915 were 3% less than in 1914 and 6% greater in the bituminous mines, the latter being due to two explosions which cost 28 lives. These figures are given by the Pennsylvania Department of Mines, which has received official reports showing 583 killed in the anthracite field, against 600 in 1914, and 438 killed in bituminous mines against 413 in 1914. The state now has 25 anthracite mine inspectors and 30 bituminous inspectors, increases having been made last year.

Philadelphia, Penn.—In an endeavor to solve the problem of securing vessel tonnage for the carrying of coal the Greek Government, through its consul at Philadelphia, has ordered the commandeering of merchant vessels flying the flag of that country. It is understood that the Greek navy has made fuel purchases to the extent of 200,000 tons to be loaded at Norfolk, Va., and the first vessels to be seized are the "Styliani Bebis" and "Paralos," which have been ordered to the above port at once for loading. Other vessels to be taken over are the "Ionannis," "Nicholas," "Athanasoulis" and "Sesostris," which have already arrived at Norfolk.

Baltimore, Md.—Construction work has been begun at Canton, Baltimore, on the Chesapeake Bay of a new coal pier for the Pennsylvania Railroad Co. This pier will be almost 1,000 ft. long and will have a daily capacity of 20,000 tons of coal for vessel loading, the pier being so arranged that four vessels can be loaded at the same time. For local vessel deliveries arrangements have been made at the end of the pier. Among the up-to-date facilities provided for the new plant is a thawing house whereby frozen coal will be thawed out by means of live steam. This thawing house is sufficiently large to handle 40 cars at one time. The erection of this pier has also made necessary the provision of a new storage yard for the cars and this will have a capacity of 1,000. It is believed that the new plant will be in operation not later than May 1, as the work on it is now actively under way.

Toronto, Canada—The action of the Pacific Coast Coal Co. against John Arbuthnot and the other directors involving a large amount was decided recently at Vancouver, B. C., by Judge Clements in favor of the company on every point. The principal question was respecting an amount of $1,320,000 in shares voted by the directors to themselves as payment for a number of coal claims known as the Hodgson stakings, which included shares to the value of $105,000 given by Arbuthnot as a present to Hon. Dr. Young, then provincial secretary. The evidence showed that only $2,300 and some staking expenses had been paid for the claims by the defendants before they were handed over to the company. The judge decided that the defendants were not entitled to receive more shares than would cover at par the actual value of the property at the time the company was founded in 1908.

El Paso, Tex.—The strong demand for coal here, especially from the mining districts in Mexico, has caused renewed activity in the coal fields in southern New Mexico. The Phelps-Dodge Corporation, which owns large acreage in this field, now has a field force of five men making explorations in an effort to learn the extent of the deposits in this section. The corporation is planning to do extensive development work in this field. The Huntington Estate, former owner of the Southern Pacific, owns 10,000 acres here, which was patented 30 years ago. If the coal deposits prove attractive this entire tract will be developed at once. The Wightman Syndicate has recently purchased the White Oaks property and is doing extensive development work. Since this syndicate has begun operations, numerous smaller companies and independent operators are working small tracts, and the entire Carizozo-Nogal district is a scene of unusual activity.

Market Department

General Review

Short car supply restricts anthracite production while demand increases at a spectacular rate. Bituminous situation fairly well in hand though occasional large premiums are paid. Exports make another big gain. Interior markets greatly disturbed. Middle West continues very active.

Anthracite—The demand continues to increase at a spectacular rate, while the agencies are hard pressed for supplies, and all surpluses are practically wiped out. As a rule the companies have so far succeeded in keeping their regular customers supplied, although the latter are picking up surplus tonnages in the open market whenever the opportunity occurs. The inadequate car supply is curtailing mine operations materially, while embargoes have diverted considerable coal from its regular market, accentuating the shortage there, but tending to relieve the situation at other points; Philadelphia has benefited, while New England and Long Island Sound points are in a serious predicament. Dealers are making every effort to accumulate surpluses against a possible suspension on Apr. 1, contrary to usual practice. Numerous changes pending in the anthracite industry will soon force higher prices, and there is a feeling that coal at current figures will prove a profitable investment.

Bituminous—The car and labor supply are the shortest at any time since the beginning of the present boom. The Hampton Roads coals are being relied upon largely to make up the deficiency at tidewater points, where some buyers are occasionally forced to pay an exorbitant figure for an extra car to tide them over. Evidence of the extreme urgency of the situation is seen in a number of actions at law, where companies have been unable to fulfill their contract obligations. The market is more or less a weather proposition from now on, and fluctuations are governed almost directly by temperature conditions. Barge movement along the coast has improved somewhat, and there are indications that the situation may be a trifle easier.

Exports—The foreign demand has become so urgent that even still further advances in ocean freight have not been sufficient to put the brakes on shipments and the week's tonnage at Hampton Roads exceeded that for the previous period, which in turn was the highest since the boom period of last fall. Supplies are scarce at the loading ports, and a number of shippers have been forced into the open market for sufficient tonnage to fill out cargoes. Some new high record freights have been paid to South American points, and rates are now firmly established on this basis. The movement coastwise has improved, and there is apparently less apprehension in this trade.

Ohio Valley—The market is greatly disturbed, prices hinging more on the possible prospects for prompt delivery rather than quality. Embargoes are raised but again renewed sometimes before shipment can be made. The possibility of a suspension in mining on Apr. 1 has also become a potent factor in the situation and many large buyers are taking energetic measures to accumulate surplus tonnages. The market fluctuates with startling rapidity and it is seldom possible to determine the outlook half a day ahead.

Middle West—Continued severe weather has developed an urgent demand for domestic grades, and with steam sizes already active, the general condition of the market has seldom been more favorable. Surplus stocks have been practically wiped out, and mine operations are being crowded up to the full limits of the car supply, which is far from adequate, due to interruptions to transportation and congestion at junction points. The sales agencies are concentrating all of their energy now on meeting the urgent clamor for coal and competition among buyers is forcing prices up to substantial premiums in occasional instances. The loading facilities at the upper Lake docks are strained to the limit by a heavy demand in all directions, and some delays have resulted from the congested condition of the yards, but on the whole there is a heavy movement.

A Year Ago—Large accumulations of anthracite and prices are weakening. Bituminous output rigidly curtailed, but still in excess of market requirements. The expected improvement in the industrial consumption has failed to materialize.

BUSINESS OPINIONS

Boston News Bureau—The failure of the general market to respond to the action of the Steel directors, and the remarkable exhibit of earnings presented, was a clear notice that the big interests were not yet ready for a sustained upward movement. Undoubtedly the two important menaces are the labor unsettlements and the foreign liquidation of American securities. This country is in a position where it is not only called upon to finance itself, but largely the world. Unless the improbable happens we will be able to see the thing through, but we must go slowly and be over-conservative. All business reports are favorable, the figures of the steel industry show the enormous activity and profits under way.

Iron Age—The scale of earnings of the United States Steel Corporation puts the stamp of definiteness on the high level of prosperity of the steel trade as a whole. With prices half again and in some cases twice as high as they were a year ago and a volume of business two to two and one-half times as great as in late 1914, we are still moving in the direction of higher prices. The incessant demand for material booked and the repeated efforts to find takers for the large volumes for export give some indications of the promise of 1916 There are clouds on the horizon but as yet not portentous. Ocean freight charges twice the seaboard cost of material are making it increasingly difficult to close for desirable export business. High prices are checking new projects, though as yet these total to a moderate volume only and may mean merely deferred consideration in some cases. New buying is on the whole not heavy but this causes the mills no concern with their bewildering piles of orders for months ahead.

Bradstreet—Wholesale trade in spring goods, opening earlier than usual, is satisfactory; road salesmen report marked success in booking orders; filling-in business keeps up well; cold weather has enabled retail dealers to make further inroads on stocks of heavy wearing apparel; leading manufacturing lines are being urged to the utmost to make deliveries and collections are good.

Dun—Requirements are so extensive that productive and transportation facilities continue inadequate to meet current demands. Congestion of freight still prevails at the seaboard and, though railroads have made additions to rolling stock, domestic deliveries are increasingly difficult. Commercial failures this week are 462, against 453 last week, 481 the preceding week, and 713 the corresponding week last year.

Dry Goods Economist—Among the important developments of the week have been new advances in rugs and carpets and in cotton fabrics. In both of these lines the dyestuff situation is reflected. The hearings given by the Ways and Means Committee at Washington in regard to measures for the protection of the American dyestuff manufacturers brought out valuable statements from chemists and textile manufacturers.

Marshall Field & Co.—Current wholesale distribution of dry goods is in excess of a year ago. Reports from various points over the country indicate that retail January sales are very active. Road sales are running about the same as a year ago, and more customers have been in the market. Collections are normal. Prices very firm.

American Wool and Cotton Reporter—Speculation in fine scoured wools, great activity in fine noils, and heavy sales have been predominant features of the week in the Boston wool market. So exciting has been the pace in the demand for scoured wool that one lot sold six times among dealers. Big sales to the mills have also been consummated.

Southern Lumberman—Excessively cold weather practically throughout the entire country has affected the consumption of lumber and reduced retail sales during the first part of the week. The weather has made all kinds of outdoor construction well-nigh impossible and rendered yard work and shipping unusually difficult. It now looks as if this delay to the resumption of activity following the holiday period is to be a short-lived one, however, and it is confidently expected by most manufacturers and dealers that the brisk movement that was prevalent before Christmas will reassert itself by the first of February.

ATLANTIC SEABOARD

BOSTON

No change in Pocahontas and New River, except that delivered prices are easier. Georges Creek output very light. Pennsylvania grades unchanged at Tidewater but movement all-rail improves and prices soften. Marine freights not so firm. Anthracite loading still slow.

Bituminous—Most of the Hampton Roads shippers are short of coal, the output still being light on account of the shortage of labor in some of the West Virginia districts. The few agencies who have been able to keep boats coming have been able also to maintain a normal production and that has been a great help in retaining mine-workers. By exchanging coal at the piers the shippers are able to give fair dispatch, but the outlook for a fortnight hence is not so favorable. The market is firm at the $2.85 price, but so far no general advance on that figure has yet been paid.

Delivered prices seem to be a little easier. The demand for spot coal is not so insistent; only in a few scattered instances are buyers willing to pay the price. Barge movement along the coast has improved with the weather and there is less apprehension than a fortnight ago. Some of the distributing points are congested, but that is less true of Boston and Providence than at ports where normally the tonnage of tidewater coal is small. Cargoes coming forward on the market do not find a ready sale. The mild weather has been an important factor in the situation.

Georges Creek coals seem to be effectually barred from this territory for the present. Embargoes are in force on routes all-rail and to Philadelphia and New York. Car-supply continues very poor on lines to tidewater. Hampton Roads coals are still being relied on by some of the shippers to make good the deficiency in tonnage. What coal does reach tidewater is necessarily on contract and no prices are quoted.

The Pennsylvania grades show no particular change, except that prices for coal in transit have softened 25@50c. during the week. Embargoes have been raised in some directions, notably on coal originating actually on the New York Central, but coal from connecting lines is still held up. Coal in January showed an increase of 55% in tonnage via the transfer points to the Boston & Maine and the Boston & Albany as compared with a year ago. This great increase is due to the shortage of boats and the high marine freights that prevail on water coal. Car movement is improving and it is felt that the whole all-rail situation will be much clearer in another week or two; $2.50@2.75 is the latest range on average Clearfield coals. Buyers are discriminating more and it begins to look as if the market were over the apex, at least for a month or so. There is nothing like high prices to increase output.

Water Freights—Although there is an easier tone in rates from Hampton Roads to Boston, there is no surplus of boats. It is more a slackening in demand and the fact that shippers have about ceased chartering slow-sailing schooners or even barges for two and three trips ahead; $1.75 is still being paid for small schooners from New York to Providence, with an occasional barge at $2.

Anthracite—Shipments are still extremely slow. Stove is in such short supply that the companies are restricting the proportion of that size in any one cargo. A warm spell has helped the dealers very materially but when the temperature drops the situation will rapidly get serious again. Most of the collieries are on part time on account of car supply and handling at the piers is also very slow.

Bituminous prices, f.o.b. loading port at points designated, are about as follows, per gross ton:

	Philadelphia	New York	Baltimore	F.o.b. Mine
Clearfields	$4.00@4.50	$4.25@4.75	.....	$2.50@2.75
Cambrias and Somersets	4.25@4.75	4.50@4.85	.....	2.75@3.10
Georges Creek	.....	.....	.....	.....

Clearfields delivered alongside Boston at $5.60@5.75. Pocahontas and New River are quoted $2.85, f.o.b. Norfolk and Newport News, Va. On cars at Boston and Providence, Pocahontas and New River are quoted $6.25@6.75.

NEW YORK

Anthracite demand heavy and car supply tighter. Dealers anxious about conference of operators and mine representatives. Bituminous situation softened by warm weather. Embargoes modified slightly with conditions. Vessels short and rates high.

Anthracite—The unseasonable weather of the past week did not cause any letting up of the demand for hard coal. Dealers are anxious about the outcome of the first conference between the operators and miners scheduled to take place in New York next month.

The most urgent call for coal comes from New England and Long Island. Both sections are short of coal, due mostly to embargoes and good premiums on shipments to these points are being obtained. As yet very little premium coal is being sold to local dealers and then only in urgent cases where quick shipment is desired. The companies are able to take care of their regular customers, although many of the latter are picking up some free coal. Tne line trade is brisk and mine quotations average higher than at Tidewater.

Current quotations, gross tons, f.o.b. Tidewater, are as follows:

	Lower Ports		Upper Ports	
	Circular	Individual	Circular	Individual
Broken	$5.05		$5.10	
Egg	5.30	$5.30@5.30	5.35	$5.35@5.35
Stove	5.30	5.30@5.40	5.35	5.35@5.45
Chestnut	5.55	5.55@5.65	5.60	5.60@5.70
Pea	3.50	4.25@4.50	3.55	4.30@4.55
Buckwheat	2.75	4.00@4.15	2.80	4.05@4.20
Rice	2.25	3.40@3.50	2.30	3.45@3.55
Barley	1.75	2.50@2.90	1.80	2.55@2.95

Bituminous—The soft coal market eased up slightly the first part of the week, due to higher temperatures and several of the railroads modified their embargoes temporarily, warning shippers in some instances against undue delay in unloading. There was no improvement, however, in vessel supply and continued trouble was expected from this direction with harbor rates as high as 55c. remaining in force.

The Tidewater market continues brisk with high prices remaining in force. The same can be said regarding the inland trade, mine prices varying according to the railroad over which shipments are to be made. Car supply and weather conditions control the Tidewater market and hardly a day passes without changes in both prices and demand. The Pennsylvania lifted its embargo over South Amboy and the Baltimore & Ohio after a conference with shippers issued a similar order affecting St. George shipments the first three days of the week, with a promise that a further extension may be granted under certain conditions.

Early this week quotations in the local market ranged from $4.15 to $4.75, f.o.b., and one sale was noted at $5.15 alongside. Line quotations were around the $3 mark.

Current quotations, gross tons, f.o.b. Tidewater, averaged as follows:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein	$4.55@4.80	$4.55@4.80	$4.55@4.80	$3.00@3.25
Georges Creek Tyson	4.30@4.55	4.30@4.55	4.30@4.55	2.75@3.00
Clearfield:				
Medium	4.30@4.55	4.30@4.55	.....	2.75@3.00
Ordinary	4.15@4.40	4.15@4.40	.....	2.60@2.85
Broad Top Mountain	.....	.....	.....	2.60@3.00
Cambria County:				
South Forks	4.30@4.55	.....	.....	2.75@3.00
Nanty Glo	4.30@4.55	.....	.....	2.60@3.00
Barnesboro	4.30@4.55	.....	.....	2.60@3.00
Somerset County:				
Quemahoning	.....	4.30@4.55	4.30@4.55	2.75@3.00
Medium	4.20@4.40	4.20@4.40	4.20@4.40	2.65@2.85
Latrobe	4.15@4.35	.....	.....	2.60@2.80
Greensburg	4.15@4.35	.....	.....	2.60@2.80
Westmoreland	4.25@4.40	.....	.....	2.50@2.75
West Virginia Fairmont		3.80@3.90	3.80@3.90	2.00@2.10
Fairmont mine-run		3.80@3.90	3.80@3.90	2.00@2.10
Steam		4.05@4.30	4.05@4.30	2.50@2.75
Western Maryland		4.15@4.30	4.15@4.30	2.50@2.75

PHILADELPHIA

Anthracite continues active, with shippers declining orders. Collieries closed down by car shortage. Egg in strong demand, and buckwheat and rice selling above circular. Shortest car supply of season delays bituminous movement and prices are advancing.

Anthracite—The demand increases at a most unprecedented rate, and dealers find themselves hard pressed for deliveries and dangerously short in their supply. This applies to all sizes; even egg, the least active size has taken a sudden spurt and many dealers, especially those in the outlying sections, have ordered in large blocks. Some of the big companies have been idle for a day or two at a time for want of cars. At the present time the Philadelphia trade is being greatly helped by embargoes which have diverted considerable coal intended for New York and the East, to this point. The books of most companies are so overcrowded with orders that sales agents are on the verge of instructing salesmen to solicit no more business.

The largest shippers are ignoring their circular prices on buckwheat and rice coal; the price at which the former size is selling gives rise to the rumor that pea coal may be advanced again. This would not be at all surprising, as $2.50 has been known to have been refused for buckwheat, while

individuals are selling washery pea at $2.75, which found no buyers all summer at $1.50@1.60. The rapidly narrowing differential between the prices of pea and buckwheat is almost certain to be checked by a rise in the price of the larger size. Rice has been sold at 60@75c. above the contract price of 90c., and one of the largest shippers who has a large stock of this size stored in the city refuses to quote any price at all. As a matter of fact those who have contracted for three months on buckwheat and rice obtained unusual bargain prices at $1.40 and 90c.

The demand for stove far exceeds the supply and many of the dealers' bins have been empty the past week. Chestnut too is very active, but more of this size has been coming to market than for some time. There is no grade on which the demand is light. Every free car of broken, buckwheat and rice is snapped up regardless of price, while the dealers are clamoring for stove, chestnut and pea for the domestic trade.

Heavy stocking continues, particularly by the retail interests, who are endeavoring to accumulate some surpluses by Apr. 1. It is now generally understood that the railroad companies intend to accept the reduced freight rates ordered by the Public Service Commission on shipments to Philadelphia. It is also felt that the new rates will be an important factor in changing of the sizes of coal, which is now being agitated in several quarters. In addition the new compensation law is expensive, while the miners will either have their wages raised or there will be a strike, so that most indications point to higher prices.

Prices per gross ton at mines for line shipment and f.o.b. Port Richmond are as follows:

	Line	Tide		Line	Tide
Broken	$3.60	$4.85	Pea	$2.55	$3.30
Egg	3.85	5.10	Buckwheat	1.55	2.30
Stove	4.10	5.10	Rice	.90	1.80
Chestnut	4.25	5.35	Barley	.55	1.30

Bituminous—The car supply is the poorest it has been at any time since the boom started. The embargoes continue and the lack of cars has curtailed some operations as much as 50 per cent. The demand is insistent and instances are frequently heard of plants paying almost extortionate prices for a single car to tide them over. Some companies with contracts they are unable to fill are being threatened with suits, and in several instances actions have been actually entered. Naturally prices have stiffened, the increase amounting to as much as 50c. on some grades. A fair average of the prices, per gross ton at mines, ruling at this time is about as follows:

Georges Creek Big Vein	$3.10@3.25	Fairmont gas, ¾	$2.30@2.45
South Fork Miller Vein	2.90@3.00	Fairmont gas, mine-run	2.15@2.20
Clearfield (ordinary)	2.75@2.85	Fairmont gas, slack	1.95@2.10
Somerset (ordinary)	2.60@2.70	Fairmont lump, ordinary	2.15@2.20
West Va. Freeport	2.45@2.50	Fairmont mine-run	1.90@2.05
		Fairmont slack	1.95@2.10

BALTIMORE

Market again tightens under restricted car movement. Improvement in exports.

While there is still enough coal at tide here to meet requirements, there is a scarcity at many other points. Outside of Newport News the Baltimore situation is easier than any other point on the coast. At line points between the mines and tide many consumers are short and unable to get coal. While there is quite a wide range of quotations, operators are rapidly forcing their prices back to the high schedule that existed here before the Baltimore and Ohio embargo broke the stiff market.

Prices were being quoted to the trade last week about as follows:

	Mines	Balt.*	Fairmont	Mines	Balt.*
Geo. Crk. Big Vein	$2.70	$3.86	Ordinary mine run	$1.40	$2.88
Geo. Crk. Tyson	2.50	3.66	Ordinary ¾	1.60	3.08
Clearfield	2.00	3.18	Ordinary slack	1.00	2.48
South Fork	2.10	3.28	Low sulphur mine-run	Out of market	
Latrobe	1.95	3.13	Low sulphur ¾	Out of market	
Somerset (best)	2.10	3.28	Low sulphur slack	Out of market	
Somerset (good)	1.85	3.03			
Quemahoning	2.10	3.28			
Freeport	1.75	2.93			
Miller Vein	2.10	3.28			

* F. o. b., outside Capes.

HAMPTON ROADS

Larger movement and stocks somewhat reduced with some shippers even short of tonnage. Dumpings for the month make a substantial gain.

Dumpings over the tidewater piers during the past week have been heavy. The coastwise movement was good and foreign cargoes were fair. The government has also loaded the collier "Cyclops" with about 10,000 tons for use of the fleet. Coastwise shipments have been heaviest to Boston, with a few small cargoes to the Southern ports. The accumulation of coal at Hampton Roads has been cut down considerably though there is a fair quantity on hand; a number of shippers are short of coal for contract business, however, and have been compelled to get out and buy in the spot market. There has also been a few small parcels of coke shipped to Italy and Cuba.

Both the Virginian and Chesapeake & Ohio have to date shown up well in dumpings and it is believed the Norfolk & Western figures will also make a good showing and the outlook is bright for a heavy total for the month.

Prices on standard New River and Pocahontas are around $2.75 to 2.85, although it is difficult to ascertain exact figures at which any sales are made. There has been some demand for high volatile during the week, but there is very little of this grade on hand.

Railroad Tonnages—Dumpings over the local piers for the past five weeks compare as follows:

	Week Ending				
Railroad	Dec. 25	Jan. 1	Jan. 8	Jan. 15	Jan. 22
Norfolk & Western	162,494	112,613	122,342	144,969	142,335
Chesapeake & Ohio	96,620	91,177	92 235	105,053	98,388
Virginian	54,132	66,990	64,428	88,396	101,237
Totals	313,246	270,780	279.005	338,418	341,960

Ocean Charters, Clearances and Freights

VESSEL CLEARANCES

The following steamers have cleared from various ports during the week ended Jan. 22.

NORFOLK

Vessel	Destination	Tons	Coke
Torrington[1]	Savona	6,300	1,000
Styliani Bebis[2]	Piraeus	6,058	
Enrico Parodi[2]	Maddalena	5,451	
Virginia[1]	Bagnoli	4,765	
Moldegaard[2]	Havana	3,040	300
Lewis H. Goward[1]	St. Georges	1,900	
Paralos[2]	Piraeus	4,995	
Kim[4]	Brazil	8,000	
Enrichetta[1]	Bagnoli	3,578	
Nordboen[3]	Cuba	3,996	
Jungshoved[5]	St. Lucia	5,700	
Tabor[5]	Curacao	5,400	
Josephine[3]	Para	1,138	
Denis[6]	Para & Manos	2,369	

NEWPORT NEWS

Vessel	Destination	Tons
Egda[2]	Havana	3,600
Ecclesia[2]	Naples	4,500
Amelia[3]	Kingston	838
Calumet[6]	Brazil	1,800

Norfolk, Va., Jan. 23, 1916.

PHILADELPHIA

G. Pyman*	Barcelona	
Siskiyou	Casilda	523
Ponce	Guanica, P.R.	2,519
Rosebank	Valencia	
Malm	Sagua le Grande	

*Berwind White C. M. Co.

[1] Pocahontas Fuel Co. [2] New River Coal Co. [3] Smokeless Fuel Co. [4] Baker Whiteley. [5] Castner, Curran & Bullitt, Inc. [6] Chesapeake & Ohio Coal & Coke Co.

OCEAN CHARTERS

The following charters have been reported from various sources during the past week:

PHILADELPHIA

Vessel	To	Tons	Rate
Siskiyou	Casilda	523	
Munorway	Cuba	2,224	
Malm	Cuba		

VIRGINIA

Theoline	Bermuda	850	4.00

VIRGINIA—Continued

Vessel	To	Tons	Rate
Barbara	Bermuda	746	4.00
Ruth Cobb	Bermuda		5.00

ATLANTIC RANGE

McClure	Halifax	191	2.65
Lawson	Halifax	274	2.65

OCEAN FREIGHTS

A steamer of 3,500 tons, 10 per cent, was chartered this week from Virginia to Lower Plate, at $14.40, option Rosario at $15.36, with 500 tons per day discharge, which charter is $1.20 over the previous fixture, and other steamers are now asking same terms. There are no other coal charters of importance to report. Rates to other destinations are at about the same level as a week ago. We would quote freight rates on coal by steamer as follows:

We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
[1]Havana††	$3.00@3.25	Bermuda	$4.50
Cardenas or Sagua	4.75	Vera Cruz	6.25
Cienfuegos	4.50@4.75	Tampico	6.25[3]
Port au Spain, Trinidad	6.25	Rio	13.50@14 00[6]
St. Lucia	6 00	Santos*	13.75@14 25
St. Thomas	5.75	Montevideo	14.40
Barbados	6.25	Buenos Aires or La Plata†	14.40[4]
Kingston	4.50@5.00	Rosario	15.36[5]
Curacao	6.00[2]	West Coast of Italy	29.50
Santiago	4.50@5.00	Barcelona**	25.20
Guantanamo	4 50@5.00	Valparaiso or Callao	15.00
Demerara	7.00@8.00	Marseilles	25.20

* Consignees paying dockage dues. ** Spanish dues for account. † Quotations on Plate coal by British steamers; neutral steamers are more difficult to obtain and the rates are always higher. †† For very quick discharge.

W. W. Battie & Co.'s Coal Trade Freight Report.

[1] Quick despatch. [2] And p.c. [3] 500 discharge @ .30. [4] 500 discharge @ .30. [5] 500 discharge. [6] 500 discharge.

OHIO VALLEY

PITTSBURGH

Car shortage acute. Wide range of prices depending on character of coal, shipping point and destination. Lake Erie holds its cars.

There is a very wide range of prices that might possibly be quoted as representing "the market" on Pittsburgh coal for the reason that the character of the coal and the shipping facilities have everything to do with making the price. Transportation difficulties have greatly increased, making coal on one division worth much more than that on another, by reason of its standing much better chances of reaching destination promptly. Then there are wide variations on account of character of coal, as the buyers now in the market want specific descriptions. For instance the Republic Iron and Steel Co. was last week short of coal for its byproduct coking plant at Youngstown through the car supply at its Connellsville region mines being very poor, and it paid as high as $2 for byproduct coal. When it had a strike not long before, affecting the byproduct coking plant but not the mines, it sold Connellsville coal at a much lower figure, and the buyer had difficulty in disposing of it.

Car supplies have been poor in general, and extremely light on some divisions. There is scarcely any movement East, where tens of thousands of coal cars are tied up, unable to move to destination, let alone return to the mines as empties. Effective last Friday midnight the Pittsburgh & Lake Erie placed an embargo against any of its coal cars leaving its lines, including the New York Central lines, of course, and it is reported that the Pennsylvania and Baltimore & Ohio are contemplating similar action, although no definite announcement has been made up to this writing.

At some of the mines a slight labor shortage is reported, but this is insignificant compared with the transportation difficulties. The railroads are making strenuous efforts to relieve the situation, although shippers insist that the proverbial stitch in time would have been much more effective.

The market in a general way is somewhat stronger than a week ago, but can be quoted only roughly, as follows: Slack, $1.35@1.60; mine-run, $1.50@1.75; ¾-in., $1.60@1.85; 1¼-in., $1.75@2, per net ton at mine, Pittsburgh district.

BUFFALO

Bituminous still high and very uncertain. Anthracite fluctuating with the weather. Supply light.

Bituminous—The market grows more difficult to understand every day. One day the embargo will be off a certain line, but before a shipment can be made it will be on again. A rumor that New England would be open to coal last week sent flood of buyers in from that district. Sellers from the Southwest are also here with No. 8 coal, on the report that the embargo against them eastward was lifted. Every day brings some unexpected change and with it a change of price.

Buffalo is still buying Pittsburgh No. 8, Richland, Bessemer and Panhandle, since it is frequently offered a dollar cheaper than Pittsburg or Allegheny Valley, but there is no certainty as to what price will be asked. Sometimes the accumulation, with no outlet eastward, sends these quotations down to $1.25, mine price, for three-quarter, while a sudden scarcity will often advance the price to $1.75. It is seldom possible to size up the market for more than half a day at a time. The latest news from Pittsburgh is that all prices are strong.

Buffalo really has no market of its own. The Pennsylvania quotations must be taken as the asking prices where next to no sales are expected. They are fully a dollar more than consumers generally pay for No. 8, as follows:

	Pittsburgh	Allegheny Valley	Penn Smokeless
Lump	$3.70	$3.50	$3.55
Three-quarter	3.55	3.35	.....
Mine run	3.45	3.25	3.25
Slack	3.00	2.95	3.25

Prices are f.o.b. cars per short ton, except east of Rochester and Kingston, Ont.

Anthracite—The market is much steadier than the bituminous, but the weather is so changeable that it is difficult to keep orders on the books. When the temperature declines there is a cloud of telegrams, urging shipments forward, but when it rises many orders are canceled, all perhaps within three or four days. As a result the shippers now go on regardless of the weather. Coal has been rather scarce, the Eastern demand appearing to be greater than ours. However, there is little or no premium paid for independent anthracite, though the operators continue to demand it and wonder why it cannot be obtained. The Canadian trade is still light and shows no indication of improving this winter.

Following is the regular circular price of anthracite in this market:

	Cars	Vessels	Retail	Custom
Grate	$5.60	$5.85	$5.40	$6.65
Egg	5.85	6.10	5.65	6.90
Stove	5.85	6.10	5.65	6.90
Chestnut	6.10	6.35	5.90	7.15
Pea	4.30	4.55	4.30	5.60
Buckwheat	3.25	3.50	3.25	4.50

Car and vessel deliveries are per long ton, the others, per short ton. An addition of about 25c. per ton is made on all curb deliveries for putting in.

DETROIT

Variable prices and slight irregularity in steam coal. Warm weather weakens domestic trade. Anthracite sluggish. Contracting in Lake trade delayed.

Bituminous—High temperatures have slowed down the domestic trade, but near zero weather this week gives further stimulus to the buying by consumers. In the domestic business there has been some lack of regularity, and price changes have reflected the variations in supply and demand. Sales have been quite active with the demand centering mainly on small sizes, of which the supply is curtailed due to coal from the Fairmont and Pittsburgh No. 8 districts being diverted elsewhere. West Virginia and Ohio slack of good quality brings from $1.15 to $1.25 at the mines.

Anthracite—Interest in anthracite became less active with the warm weather and buying is proceeding slowly, especially as regards stove and egg sizes. A little stronger demand continues for chestnut and the supply is not over-plentiful, while transportation conditions delay delivery from the mines.

Lake Trade—Practically no contracts for moving coal over the Lake route have been reported closed during the week. Because of the numerous sales of freighters to iron ore shippers, the coal men appear to be finding it difficult to secure vessel capacity.

COLUMBUS

Domestic grades strong, due to the zero weather, but higher temperatures have caused a lull in the demand. Trade purely a weather proposition. Steam grades continue firm.

There has been an increased demand for domestic sizes, due to lower temperatures and the possibility of a suspension after Apr. 1. The domestic grades show unusual strength and prospects are for good business. Dealers' stocks are not large and with an insistent demand from consumers, they have been forced into the market for larger tonnages. Retail trade is active and the icy condition of the streets interfered with deliveries to a certain extent.

There is no let-up in the demand for steam grades. Manufacturers are asking for larger tonnage and there is a tendency to stock up in anticipation of a suspension, particularly among railroads, which have accumulated heavy surpluses. Contracting is not active because of the uncertainty concerning the future of the mining scale. Contracts closed are generally at increased prices over last year.

The car shortage is again a factor, especially on the West Virginia roads. As a result there is a better demand for Ohio-mined coals. Considerable West Virginia coal is being shipped to the Buffalo markets. Anthracite is becoming stronger in central Ohio territory.

There is considerable speculation as to an advance in the circular after Feb. 1, and judging from present conditions an increase is likely. Premiums are freely paid for spot shipments of small sizes and even mine-run.

Prices in Ohio fields, f.o.b. mines, per short tons, are as follows:

	Hocking	Pomeroy	Eastern Ohio	Kanawha
Re-screened lump	$1.60	$1.70	.....	.....
Inch and a quarter	1.50	1.50	$1.40	$1.50
Three-quarter-inch	1.40	1.40	.....	1.40
Nut	1.25	1.30	.....	1.25
Mine-run	1.20	1.25	1.05	1.20
Nut, pea and slack	1.10	1.10	1.00	1.05
Coarse slack	1.00	1.00	.90	.95

CLEVELAND

Cold weather stimulates the market. Steam coal prices advance. Railroad congestion causes anxiety.

The severe winter weather early last week put new life into the market. The demand was largely attributable to the weather, but was also due in part to low pressure of natural gas. The flurry, however, had no material effect on prices and it is hardly likely that it will, as moderate weather is predicted for the next few days and dealers will have ample time to replenish their stocks.

At the moment attention is centered on steam coal. Prices have advanced steadily, especially on coarse coal, which, until recently, has been selling in this market at from 15c. to 25c. per ton less than on the line. Slack prices have also increased materially and predictions are that they will go higher before the close of the week. A comfortable supply of both sizes has arrived here, but due to the congested condition of practically all of the railroads switch movement through yards

has been slow, and the cause of considerable anxiety on the part of consumers drawing on storage piles. Requests for quotations from out-of-town buyers are numerous and shippers are preparing to move a heavy tonnage next week.

The following prices are being quoted to the jobbers on short tons f. o. b. Cleveland:

Cambridge and Middle District slack	$2.10	Pittsburg No. 8 ¾-in. lump	$2.25
Pittsburg No. 8 and Kentucky nut and slack	2.20	Bergholz 6-in. lump	2.40
Cambridge ¾-in. lump	2.15	Massillon 2½-in. lump	3.20
		Pocahontas lump (in gondolas)	3.45
		Pocahontas lump (in hoppers)	3.30

TOLEDO

Cold weather helps Toledo trade. Slack strongest feature of market. Pocahontas shows weakness.

Slack continues the strongest feature of the Toledo market. The domestic trade has not shown any great strength or activity except during the few recent cold snaps. The extreme warm weather of the past few days has again had a deadening effect.

The steam market is the strongest feature and the demand continues good, while prices are well maintained. Pocahontas lump is showing weakness. The railroads are stocking heavily and industrial plants have not contracted for much coal. Supplies appear about normal for the season.

CINCINNATI

Unseasonably mild weather makes the domestic market weaker, with resulting strength in nut and slack. Car supply is again off.

Following immediately after the most severe weather of the winter, temperatures between 50 and 60 deg. prevailed during the latter part of last week, and the domestic market is much weaker. But stocks are still good in yards and bins, and as there is now less prospect of more bad weather, the operators and wholesalers derived little benefit from the cold; a slightly improved movement to the Northwest resulted, but hardly enough to help the general situation materially. The strength of screenings continues, although the steam market as a whole leaves a good deal to be desired. After one good week of car supply, it slumped off again last week to three and four days' supply.

COKE

CONNELLSVILLE

Acute car scarcity curtails production and coke in transit is also delayed. Many blast furnaces forced to slow down. Fancy prices for spot furnace coke. Hopes for relief later this week.

Last week will long be remembered by Connellsville coke operators. The last day or two of the previous week the car supply began to tighten, but last week there was a veritable famine. On one or two days about the middle of the week a number of operators received no cars at all, while in the week as a whole the supply was only between 60 and 70 per cent. of the requirements, and many operators received no more than about 50 per cent. on an average. The supply Friday and Saturday was better than at the middle of the week though not as good as at the opening.

This week hopes are entertained for better supplies. The week opened well, with 100 per cent. at a few plants and only slight shortages at others, but cars are always in better supply at the opening. The railroads are making the greatest possible effort to provide cars, but operators insist they should have realized the seriousness of the situation weeks ago, and before the coke region was actually crippled. About half the plants are equipped with mechanical drawing and loading devices, and cannot draw coke if they do not have cars. Others have stocked coke.

In addition to the curtailment in shipments there has been a slowing down in transit, whereby many furnaces have become short of coke and have had to run slow. In a few instances furnaces may even have been banked. There is no definite spot market as there are scarcely any sellers, and furnaces might pay fancy prices for coke on cars, with car numbers, and still not secure the delivery after all. The highest price paid thus far is $5, on about 15 cars. Foundry coke has not been affected particularly, as for once the supply of box cars is better than of open-top cars. We quote prices practically nominal as follows: Spot furnace, $4@5; contract, first half, $2.35@2.50; year, $2.25@2.35; prompt foundry, $3.50@4; contract, $3@3.50, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Jan. 15 at 429,869 tons, a decrease of 9,447 tons, and shipments at 410,189 tons, a decrease of 21,455 tons.

Buffalo—Authorities agree that the prices of coke have recovered and that the demand is active. The actual consumption is large. There is again rumor of possible resumption of the late strikes, which weakened the price a month or so ago, but the ovens are putting out all the coke that the short supply of cars and men will permit, as labor difficulties commonly have little to do with the situation. There is no stock coke offering, an off-grade furnace selling in its stead at $4.75. Best Connellsville foundry not being below $6 and running as high as $6.35, with good 48-hr. furnace at $5.10.

Chicago—Scarcity of free coke continues to trouble buyers. Market prices are uncertain with furnace advances expected. Future orders for byproduct sizes are being refused in some cases until current business is filled. Prices are as follows per net ton, f.o.b. cars Chicago: Byproduct, foundry, $6@6.25; byproduct, domestic, $4.95@5.25; Connellsville, $6.50@6.75; Wise County, $6.25@6.50; gas coke, $4.50@5.

St. Louis—A sharp improvement has developed for all sizes and grades of coke, as a result of the cold weather and demand for storage. The demand for domestic is good and for industrial is constantly increasing. The following prices are quoted per net ton, f.o.b. cars, St. Louis: Byproduct (all sizes), $5; gas house (lump and egg), $4.25; petroleum (lump), $6.75.

MIDDLE WESTERN

GENERAL REVIEW

Severe weather stiffens the market. All sizes moving freely. Steam business continues brisk. Anthracite more active.

Continued severe weather has developed an urgent demand for domestic grades, and since steam coals and the finer sizes have been occupying a strong position for some time, the technical position of the market in all respects could not be better. Prices rule at the maximum. Two distinct cold waves, which lasted seven days with steady zero weather, have been the main factor in the improvement.

Retailers complain of the difficulty in obtaining coal to restore depleted stocks, due to inadequate car supply, interruption of transportation, and reduced production, owing to miners not working full time during the extremely cold weather. All surplus coal has been moved from the mines, and no accumulation of any sizes are reported. Eastern coals have also shown improvement, including anthracite. Illinois washed coals are very strong, while screenings are averaging 5c. more per ton than last week.

Northwestern and Western demands from Illinois mines for all sizes have been urgent, and delayed transportation has accentuated the stringency. What little spot coal there is in the market has sold at a premium. Operators and wholesale shippers are optimistic over the outlook, as most shippers are now behind on their orders and the chief difficulty now is the constant clamor of customers for coal.

CHICAGO

Southern Illinois coals selling at maximum prices. Indiana steam grades very strong. Screenings cross the dollar mark on occasional sales.

Southern Illinois domestic lump, including Carterville and Harrisburg coals, have been very active at full list prices. Illinois shippers are working hard to regain their old trade in the Northwest since the restoration of the old proportion in freight rates from Illinois mines, and report some progress at no concessions in prices. All sizes of steam coals are moving in steady volume at full prices; egg and nut are steady, and No. 1 washed coal very active. Screenings have advanced on an average of 10c. per ton during the last week.

The Springfield district has had a most satisfactory week. The majority of lump shipments have been made at $1.75, while egg is selling freely at the same figure. Steam coals have been in urgent demand. The zero weather has stimulated buying of Indiana domestic coals, and indications are that higher prices will prevail within a short time. Retailers have already advanced prices from 25c. to 50c. per ton. Screenings from Nos. 5 and 6 veins are quoted at around 95c. Considerable Knox County steam lump is moving into storage.

Smokeless coals have been in active demand, egg and nut being the leader, with lump close behind. Spot lump and egg have in some cases sold at a premium. The demand for mine-run exceeds the supply. No Pennsylvania smokeless coal is available, while splint has touched as high as $2.

Hocking is in a reasonably strong position, and shipments of 6-in. lump have been short at around $1.90; 1¼-in. lump is not so strong, prices being approximately $1.60.

Kentucky screenings are more active, but the domestic demand continues quiet, and prices, except in fine coals, vary over a wide range. Jobbers report a steadily increased ton-

nage of eastern Kentucky coals going into northern Indiana and southern Michigan at satisfactory prices.

Increased movement of anthracite Westward is noticeable, but the supply of chestnut is scant. Anthracite egg and stove are in better demand. List prices have been strictly maintained.

Quotations in the Chicago market are as follows per net ton f.o.b. mines:

	Williamson and Franklin Co.	Springfield	Sullivan	Clinton	Knox and Greene Cos.
Lump	$1.65@1.75	$1.65@1.75	$1.60@1.75	$1.50@1.75	$1.60@1.75
Steam lump	1.35	1.25@1.35	1.20@1.30	1.25@1.35	1.30
2½ and 3-in. lump	....	....	1.40@1.50	....	1.30@1.35
1¼-in. lump	1.35	....	1.35@1.40	1.25@1.35	....
Egg	1.75	1.60@1.65	1.15@1.25	1.10@1.20	1.15@1.25
Nut	....	1.60@1.65	1.00@1.10	1.05@1.15	1.05@1.15
No. 1 washed	1.75	....	1.50	....	....
No. 2 washed	1.50	....	1.40	....	....
No. 1 nut	1.75	....	....	....	....
No. 2 nut	1.60	....	....	....	....
Mine-run	1.10@1.15	1.10	....	1.10@1.15	1.10
Screenings	.95@1.10	.80@ .85	....	.85@ .90	.85@ .90

	Harrisburg & Saline Co.	E. Kentucky	Pocah. & W.Va.Smok'l.	Penna. Smokeless	Hocking
Lump	$1.60@1.75	$1.60@2.30	$1.75@2.00	$1.85@2.00	$1.85@2.00
1¼-in. lump	1.30@1.35	....	....	....	1.50@1.60
Egg	1.65@1.75	1.40@2.00	1.85@2.00	1.85@2.00	1.75@1.85
Nut	....	1.35@1.60	1.60@1.75	1.60@1.75	....
No. 1 nut	1.65@1.75	....	....	....	....
No. 2 nut	1.50@1.60	....	....	....	....
Mine-run	1.15	1.10@1.25	1.25@1.40	1.25@1.40	1.15@1.25
Screenings	.85@ .95	.80@ .90	....	....	1.00@1.25

ST. LOUIS

Demand exceeds supply, market being stimulated by cold weather. Prices advance. Storage movement increases. Car supply short.

The strongest demand in several years now prevails and continued cold weather will result in a runaway market. The temperature recently went below zero and brought out a rush of orders that greatly exceeded the supply, resulting in price advances all along the line. All reserve stocks vanished and the mines were taxed to the maximum in an effort to meet the demand. Industrial consumption has likewise reached the high point of the season with prospects of still further improvement. Steam users are placing considerable tonnage in storage and domestic orders are in abundance. Railroads during the past week were heavy purchasers in the local market for storage purposes.

The car supply is considerably below normal. Junction points are badly congested with all classes of freight and delivery of coal is greatly delayed.

All sizes of Williamson and Franklin Co. are in good demand. Screenings continue to advance in price with all available supply quickly taken up. In other districts conditions are also active, with all mines operating to the full limit of the car supply.

Following are the quotations, per net ton, f.o.b. cars at mine:

	Williamson and Franklin	Staunton and Mt. Olive	Montgomery Co.	Intermediate	Standard
8-in. lump	....	....	....	$1.35@1.50	$1.25@1.35
6-in. lump	$1.60@1.75	$1.35@1.50	$1.35@1.50	1.35@1.50	1.25@1.35
3-in. lump	1.50@1.65	1.25@1.35	....	1.35@1.50	....
2-in. lump	1.40@1.50	1.25@1.35	....	1.25@1.30	1.15@1.25
1¼-in. lump	1.40@1.50	....	1.20@1.35	1.20@1.30	1.15@1.25
6x3-in. egg	1.60@1.65	....	1.35@1.50	1.35@1.50	1.25@1.35
6x2-in. egg	....	....	1.20@1.35	1.25@1.30	1.15@1.25
6x1¼-in. egg	1.40@1.50	....	1.20@1.35	1.15@1.25	1.10@1.20
No. 1 nut	1.25@1.40	....	1.25@1.40	1.25@1.30	1.10@1.25
No. 2 nut	1.25@1.40	1.00@1.15	....	1.00@1.15	1.00@1.15
Mine run	1.15@1.20	1.10@1.15	1.10@1.15	1.10@1.15	1.10@1.15
Screenings	.80@ .90	.75@ .85	.75@ .85	.75@ .85	.75@ .85
Washed					
No. 1 nut	1.60@1.75	1.50@1.60	....	1.50@1.60	1.50@1.60
No. 2 nut	1.50@1.60	1.40@1.50	....	1.40@1.50	1.40@1.50
No. 3 nut	1.50@1.60	1.40@1.50	....	1.40@1.50	1.40@1.50
No. 4 pea	1.50@1.60	1.40@1.50	....	1.40@1.50	1.40@1.50
No. 5 slack	.80@ .90	.75@ .85	....	.75@ .85	.75@ .85

INDIANAPOLIS

Mines working at full capacity and obtaining the best prices of the season. Screenings have advanced to $1 in the open market. Much buying for storage.

Mines are running at capacity, and are behind orders. Temperatures that fell below zero caused transportation difficulties that made the car supply at mines short for a few days and created serious blockades on side-tracks at Indianapolis, Terre Haute and other important points. There has been no let-up in buying for storage purposes, and there seems to be several railroads and other large consumers that have not yet covered their requirements.

The competition of buyers is such that $1 a ton, f.o.b. mines, is obtainable for screenings in the open market. During the cold spell there was improvement in prices of domestic lump, which sold at $1.65 to $1.75, according to grade; mine-run, $1.15 to $1.25 for Nos. 5 or 6 and 4 respectively; egg and 2¼-in. lump, $1.40 to $1.45. Retailers have been doing a good business, with trouble to get supplies, but no raise in prices.

KANSAS CITY

Fuel question serious due to severe weather and failure of gas supply. Special coal trains being rushed forward.

Kansas City is facing a critical situation in regard to coal supplies, due to storms and temperatures of 12° and 14° below zero and at the same time the most serious shortage of natural gas since this has been used here. Weather caused almost a complete cessation of production for two days in Kansas, the production for the week being 100,000 tons short of normal. Output in many Missouri mines was cut down by difficulty of loading. Two companies operating in Kansas are bringing two special trains of steam coal from Arkansas, by fast freight, a field that heretofore has seldom shipped to Kansas City. One of the largest companies is taking on no new obligations.

For the first time since natural gas was installed, the south and west parts of the city had not enough gas to heat and cook with and householders are making insistent calls on the coal companies. For two days deliveries could be made only by truck because of icy streets and delivery now is hampered by lack of supplies. Several companies have increased prices on Missouri coal, their quotations being: Higginsville, $2.75; Iowa, $2.25; Richmond, $2.25; Lexington, $2.50; semianthracite, $2.75. It is said that Lexington and semianthracite probably will advance further.

PORTLAND, ORE.

Cold weather causes increased demand for coal. No changes in prices.

Low temperature accompanied by a heavy snowfall swept over the Pacific Northwest on New Year's Eve, and the storm is still on, though little snow has fallen the past week. The temperature is the lowest here in seven years, and as a result the demand for fuel became very active The cold weather, too, made a deep cut in the surplus stocks, and this will mean an increase in the spring business. Prices have not advanced here, owing to the fact that wood fuel has been cheap and the coal dealers have not been doing a great deal of business, but it is certain that if the cold wave continues a couple of weeks longer prices will advance.

PRODUCTION AND TRANSPORTATION STATISTICS

IMPORTS AND EXPORTS

The following is a comparative statement of coal imports and exports of the United States for October, 1914-15, and for the ten months ending October, 1913-14-15, in long tons:

	October		Ten Months		
Imports:	1914	1915	1913	1914	1915
Anthracite, total	1,038	279	864	19,295	2,803
Bituminous, total	98,324	133,096	1,136,737	1,088,608	1,210,895
United Kingdom	262	477	5,259	8,672	16,587
Canada	69,289	90,135	897,489	840,447	959,769
Japan	5,560	16,100	89,115	50,099	78,219
Australia	23,213	26,177	141,578	187,337	153,533
Other countries	.....	207	3,296	2,053	2,787
Coke	9,956	4,443	67,297	93,936	41,015
Exports					
Anthracite total	344,434	361,264	3,598,343	3,406,491	2,956,578
Canada	334,411	339,658	3,540,336	3,351,569	2,878,523
Argentina	.....	.....	.....	.....	2,469
Brazil	.....	.....	.....	6	2,415
Uruguay	.....	.....	.....	.....	605
Other countries	10,023	21,606	58,007	54,916	72,566
Bituminous total	1,351,977	1,782,450	15,543,656	12,254,757	14,204,010
Italy	.....	282,067	.....	.....	2,630,937
Canada	979,611	1,093,653	11,662,469	8,221,467	6,776,108
Panama	25,706	49,036	419,680	239,837	438,455
Mexico	31,879	12,799	417,262	289,259	250,832
Cuba	114,426	103,172	1,111,573	908,324	946,977
West Indies	30,272	55,603	524,260	510,167	409,043
Argentina	14,118	12,802	61,877	207,904	731,821
Brazil	34,382	9,120	241,099	235,453	553,314
Uruguay	10,376	17,029	5,163	71,819	152,094
Other countries	111,207	147,169	1,100,273	1,570,527	1,314,429
Total coal	1,696,411	2,143,714	19,141,999	15,661,248	17,160,588
Coke	26,036	85,856	731,818	511,207	658,940
Bunker coal	573,822	633,172	6,483,020	6,285,770	6,311,987

PENNSYLVANIA RAILROAD

The following is a statement of shipments over the P. R.R. Co.'s lines east of Pittsburgh and Erie for December of last year and the twelve months of 1914 and 1915, in short tons:

	December		Twelve Months	
	1915	1914	1915	1914
Anthracite	1,079,076	980,275	10,961,660	11,031,708
Bituminous	4,298,382	3,269,635	44,588,789	44,756,905
Coke	1,195,899	618,694	12,020,472	9,496,312
Total	6,573,357	4,868,604	67,570,921	65,284,925

Coal Contracts Pending

The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.

Recast

In the following table we give a list of all old contracts coming up for consideration during the ensuing week. The table gives our contract number, the name of the purchaser, city tonnage and page on which the detail notice appeared.

No.	Purchaser	City	State	Tonnage	Page
1792	C. F. Claussen & Co.	Chicago	Ill.	28[3]	1088
1854	Wilder & Co.	Chicago	Ill.	37[3]	36
1856	Cloverland Dairy Co.	New Orleans	La.	800b[2]	36
1879	Heat and Power Co.	Boston	Mass.	12,000b	107
1885	City Ice and Cold Storage Co.	St. Louis	Mo.	500b[1]	107
2009	Children's Home	Cadiz	Ohio		194

b Indicates bituminous. [1] Per month. [2] Per week. [3] Cars.

Supplemental Notes

Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.

1585—Montclair, N. J.—This contract (Vol. 8, p. 700), which calls for 600 tons of pea and 60 tons of stove for the State Normal School, received only one bid. It being illegal to make an award, permission was granted by the State House Commission to purchase in the open market, which is being done. Address Chn. Melvin A. Rice, State House Commission, Trenton, N. J.

1630—Buffalo, N. Y.—Purchases on this contract (Vol. 8, pp. 828, 870), which provide for furnishing about 250 tons of coal a month for G. Elias & Bros., Inc., will be confined to the open market, this being the usual custom of this company. Address Pur. Agt. I. Gillespie, G. Elias & Bros., Inc., 965 Elk St., Buffalo, N. Y.

1675—Winnipeg, Man., Can.—Bids will be received on this contract (Vol. 8, p. 912), until noon, Feb. 22. Between 3,000 and 6,000 tons of coal will be required. Specifications and proposal forms may be obtained on application. Address Chn. S. H. Reynolds, 901 Boyd Bldg., Winnipeg, Manitoba, Can.

1904—Fort Worth, Tex.—In a previous notice concerning this contract (p. 108), it was erroneously stated that bids would be received by the receiver of the Scott Estate. This estate is entirely solvent, and has no connections with any receivership in any way. Address Norman E. Nelson, Scott Block, Fort Worth, Tex.

1938—St. Louis, Mo.—Purchases on this contract (p. 149), involving from four to five cars of Nos. 1 or 2 washed nut per week, will be confined to the open market during the current year. Address Pur. Agt. J. Stocke, Jr., the Progress Pressed Brick Co., St. Louis, Mo.

1952—East St. Louis, Ill.—Purchases on this contract (p. 150), which provides for furnishing the requirements of the Commercial Acid Co., are being confined to the open market. The company uses 2-in. screenings, and Nos. 1, 2 and 3 nut in addition to 2-in. and 6-in. lump, all of the best-grade coal from the inner group. Address A. E. Hotson, the Commercial Acid Co., East St. Louis, Ill.

1989—Philadelphia, Penn.—Bids have been received on this contract (Vol. 9, p. 193), which provides for furnishing the City Government with 25,000 tons of coal for the Shawmut Pumping Station, and 30,000 tons for the Torresdale Filter plants, deliveries to be completed before Apr. 1, as follows:

	Shawmut	Torresdale— Water	Torresdale— Rail
Emmons C. M. Co.	$3.93	$4.08	$3.93
Penna. Coal and Coke Co.	4.15	4.20	4.07
Rogers-Corr Coal Co.	....	4.60	4.37
Moore Coal Co.*	....	5.49	5.24

*Bid only on 12,000 tons.

The Emmons Coal Mining Co., and the Pennsylvania Coal and Coke Corporation were the only bidders to comply with the requirements concerning the completion of delivery before Apr. 1. Address Dir. Joseph S. MacLaughlin, Department of Sup., City Hall, Philadelphia, Penn. (No. 1835, Vol. 8, p. 1089; Vol. 9, pp. 36, 106, 148.)

New Business

Volume and page number in parenthesis at the end of an item indicate where the previous announcement, bids and awards on that contract may be found.

2017—Detroit, Mich.—The Board of Water Commissioners will receive bids until 2:30 p.m., Feb. 8, for furnishing 26,000 tons of mine-run coal to be delivered during the ensuing year. The Board reserves the privilege of ordering an additional 2,000 tons on or before Aug. 15 at the contract price. Proposal forms and specifications may be had on application. A certified check for $500 must accompany all bids. Address Secy H. A. Gilmartin, Board of Water Commissioners, Detroit, Mich. (No. 157, Vol. 7, p. 398.)

2018—Elyria, Ohio—The City Water-Works Department is in the market for approximately 3,000 tons of Ohio or West Virginia mine-run coal, delivery to be made by Baltimore & Ohio R.R. during the ensuing 12 months. All bids must be accompanied by a certified check for $100. Address Dir. M. M. Wilcox, Public Service Department, Elyria, Ohio.

2019—Chicago, Ill.—The American Terra Cotta and Ceramic Co. will be in the market on Mar. 1 for an annual supply of approximately 4,000 tons of Illinois washed nut coal. This same company will also be in the market early in 1917 for 5,500 tons of 4th vein Indiana coal. Address Pur. Agt. M. E. Gates, the American Terra Cotta and Ceramic Co., 122 S. Michigan Ave., Chicago, Ill.

2020—Philadelphia, Penn.—The Girard College is receiving tenders for furnishing and delivering before Mar. 31, if so required, approximately 3,000 tons of anthracite buckwheat coal. Address Steward Frank O. Zessinger, Girard College, Philadelphia, Penn.

2021—St. Louis, Mo.—The Missouri, Kansas & Texas R.R. is receiving quotations for furnishing approximately 400 cars of 1¼-in. lump or mine-run coal for storage purposes. Address Coal Purchasing Agent, the Missouri, Kansas & Texas R.R., St. Louis, Mo.

2022—New Brighton, Staten Island, N. Y.—The City Government will receive bids until noon, Feb. 1, for furnishing and delivering coal as follows: County Clerk's Office and Court House, at Richmond Village, Halls at Stapleton and New Brighton, Field Office at St. George, and Coroner's Office at New Brighton, 100 tons of stove coal; Old Corn Exchange Bank Building, St. George, and Borough Hall at the same place, 340 tons of buckwheat No. 1. Address Pres. Calvin D. Van Name, Room 18, Borough Hall, St. George, Staten Island, N. Y.

2023—Grand Rapids, Mich.—The Grand Rapids Gas Light Co. will soon be testing out various grades of coal, preparatory to placing its contract for the coming year. Address Pur. Agt. A. G. Schroeder, the Grand Rapids Gas Light Co., Grand Rapids, Mich.

2024—Columbus, Ohio—The Gibson-Spence Coal Co. is in the market for approximately 15 cars of nut and slack coal, deliveries to be made at the rate of one car per day. Address Sales Mgr. C. A. Gibson, the Gibson-Spence Coal Co., Columbus, Ohio.

2025—Chicago, Ill.—The Chicago Coated Board Co. is in the market for an immediate shipment of 150 tons of Illinois coal per day. Address Purchasing Agent the Chicago Coated Board Co., 420 E. No. Water St., Chicago, Ill. (No. 10, Vol. 6, p. 854.)

2026—Sandusky, Ohio—Hunt & Weis are in the market for its annual fuel supply, involving approximately 10,000 tons of West Virginia egg coal, deliveries to be made during the period between March and December. Prospective bidders should give the name and location of their mine. Address C. W. Weis, Hunt & Weis, Sandusky, Ohio.

2027—Chicago, Ill.—John E. Magill & Co. is considering propositions covering its annual fuel supply, involving approximately 135 tons of No. 4 washed nut coal per month. Address Pur. Agt. John R. Magill & Co., 35 N. Dearborn St., Chicago, Ill.

2028—Columbus, Ohio—Edmund A. Cole & Co. is in the market for approximately 5,000 tons of nut and slack coal, for shipment during the next several weeks. Address A. B. Morris, Edmund A. Cole & Co., Columbus, Ohio.

2029—St. Louis, Mo.—The Illinois Central Railroad Co. is reported to be storing 300,000 tons of lump coal at various points on its line mainly at East St. Louis and Carbondale.

It is understood that they offered to divide the tonnage among coal operators in the Belleville group, and agreed to pay $1.10 per ton, f.o.b. cars at mines, for 1½-in. or 2-in. lump. Address Coal Purchasing Agent, the Illinois Central Railroad Co., St. Louis, Mo.

2030—Canton, Ohio—The Drake Coal Co. is in the market for approximately 100 cars of Pittsburgh No. 8, ¾-in. coal, for delivery on the W. & L. E. Ry. tracks, during the next thirty days. Address Sales Mgr. Robert Lynch, Drake Coal Co., Cleveland, Ohio.

2031—East St. Louis, Ill.—Morris & Co. is asking for quotations on a surplus tonnage of 2,000 tons of 2-in. lump coal to be used for storage purposes. Deliveries are to begin immediately and continue at the rate of four cars per day. Address Pur. Agt. L. Chackers, Morris & Co., E. St. Louis, Ill. (No. 1557, Vol 8, pp. 661, 828.)

2032—Jackson, Mich.—The M. O. Dewey Co. is receiving bids for furnishing approximately 5,000 tons of West Virginia nut and slack coal, deliveries to be completed by Apr. 1. The coal must be suitable for use on a Jones Underfeed or similar type of stoker. Address Treas. M. O. Dewey, the M. O. Dewey Co., Jackson, Mich.

2033—Garrison, Ky.—W. M. Traber will soon be in the market for his annual fuel requirements, involving 25 to 35 cars of West Virginia mine-run coal, deliveries to be made between Apr. 1 and Dec. 1. Address W. M. Traber, Garrison, Ky.

2034—Port Clinton, Ohio—The National Retarder Co. is in the market for its annual fuel requirements, involving approximately 1,500 tons of Pittsburgh No. 8 three-quarter inch coal. Deliveries are to be made by New York Central R.R. during the ensuing year. Address Pres. A. H. Gallagher, the National Retarder Co., Port Clinton, Ohio.

2035—Chicago, Ill.—The National Fire Proofing Co. is confining its purchases, amounting to 150 to 200 tons of Franklin County, Ill., lump and egg coal per day, to the open market. They also require about 50 tons of Pocahontas mine-run. The contract covering a portion of its requirements expires Mar. 1. Address Pur. Agt. Greiner, National Fire Proofing Co., 327 S. La Salle St., Chicago, Ill.

2036—Lowell, Mass.—The City Government is in the market for a prompt tonnage of approximately 300 tons for use at the Centralville pumping station. Address Supply Department, City of Lowell, Mass.

2037—St. Louis, Mo.—The Wabash R.R. will begin storing approximately 150,000 tons of 1¼-in. lump coal on Feb. 1. The business will probably be divided among operators on its line. Address Coal Purchasing Agent, the Wabash R.R., St. Louis, Mo.

2038—West Carrollton, Ohio—The Miami Paper Co. is contemplating a purchase of approximately 1,900 tons of the best-grade nut and slack coal, for delivery during February. Address Pres. W. W. Sunderland, the Miami Paper Co., West Carrollton, Ohio.

2039—Portland, Mich.—The Ramsey-Alton Mfg. Co. is in the market for several hundred tons of three-quarter steam lump coal. Bidders should state the earliest date at which they can make shipments. Address Secy. and Treas. B. D. Smith, the Ramsey-Alton Mfg. Co., Portland, Mich.

2040—New York, N. Y.—The Board of Health will receive bids until noon, Feb. 7, for furnishing and delivering coal before Mar. 31 as follows: Stove, 2,117 tons; egg, 22 tons; nut, 28 tons; pea, 1,000 tons; Buckwheat No. 1, 7,575 tons; No. 3, 7,500 tons. Address Central Purchasing Committee, Room 1230, Municipal Bldg., New York, N. Y.

2041—New York, N. Y.—The Central Purchasing Committee has asked permission from the Board of Aldermen to purchase a surplus tonnage of coal in the open market, aggregating about $200,000 worth. The coal will be for use at the Bellevue and Allied hospitals, Department of Public Charities, Correction, Health, Fire, Police, Parks, Street Cleaning, Docks and Ferries, Water Supply, Gas and Electricity, Bridges and the Army Board. Deliveries are to be completed before June 1. The request has been referred to a committee. Address Central Purchasing Committee, Room 1230, Municipal Bldg., New York City.

2042—Millvale, Penn.—The City Government will receive bids until 5 p.m., Feb. 1, for furnishing three-quarter and mine-run coal as may be required at the Millvale Water-Works during the ensuing year. Bids should be submitted both f.o.b. cars at Millvale, and for delivery in bins. A certified check for $100 must accompany each bid. Address Clk. H. H. Dixon, Millvale, Penn. (No. 69, Vol. 7, p. 231.)

2043—Delmar, Penn.—The Delmar School Board will receive bids until 10 a.m., Jan. 29, for furnishing coal as may be required during the ensuing year. Address Secy. Wm. Ludington, the Delmar School Board, Delmar, Penn.

Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

1500—Punxsutawney, Penn.—This contract (Vol. 8, p. 577), calling for delivery of 500 tons of mine-run coal to the Board of Education, has been awarded to **Oliver B. Depp** at $1.44 per ton delivered. Address Secy. W. A. Sutter, Board of Education, Punxsutawney, Penn.

1530—Highland Park, Mich.—This contract (Vol. 8, p. 616), which provides for furnishing the Ford Motor Co. with approximately 25,000 tons of pea and slack coal, was distributed among the following three companies: **Logan & Kenawha Co.,** Cincinnati, to furnish Island Creek nut, pea and slack; **Jewett, Bigelow & Brooks,** Detroit, to furnish Iroquois nut, pea and slack; **United Coal Sales Co.,** Detroit, to furnish Thacker nut, pea and slack. The contract for 14,000 tons of mine-run which was requested at the same time is being held up pending some revision in the company's plant. Address Pur. Agt. N. A. Hawkins, Ford Motor Co., Highland Park, Mich.

1557—E. St. Louis, Ill.—This contract (Vol. 8, pp. 661, 828), which provides for furnishing the fuel requirements of Morris & Co., involving about 120 tons of 1½-in. or 2-in. screenings per day, has been awarded until Apr. 1 to the **Bickett Coal and Coke Co.** Address Pur. Agt. L. Chakes, Morris & Co., E. St. Louis, Ill.

1560.—Peabody, Mass.—This contract (Vol. 8, p. 661), which provides for furnishing nut and furnace coal for the City Almshouse during the year beginning last October, has been awarded to **R. B. Draper** at $6.85 per ton. Address Chn. Michael Sherry, Overseer of the Poor, Peabody, Mass.

1563.—Appleton City, Mo.—This contract (Vol. 8, p. 661), which provides for furnishing the local Board of Education with approximately 1,500 bu. of coal, has been awarded to **Saddler & Kidd** at 11¾c. per bu. for soft lump coal delivered in bins at the school building. Address Secy. Bd. of Edu., Appleton City, Mo.

1608—Sedalia, Mo.—This contract (Vol. 8, p. 737), which provides for furnishing the city government with its fuel requirements until June 1, has been awarded to **J. M. De Jarnette** at $3.10 per ton for Lexington lump coal, delivered. Address City Clk. W. E. Gold, Sedalia, Mo.

1619—Pleasantville, N. J.—This contract (Vol. 8, p. 787), calling for delivery to the asylum and almshouse of 200 tons of pea and 150 tons of stove coal at Dolphin Station, has been awarded to **Geo. W. Bailey Co.,** at price of $4.25 for the pea and $6.38 for stove, delivered. Address Supt. T. L. McConnell, Asylum and Almshouse, Pleasantville, N. J.

1635—Denver, Col.—This contract (Vol. 8, pp. 870, 947), which provides for furnishing a local post office with about 600 tons of good grade bituminous lump coal, has been awarded to the **Colorado & Utah Coal Co.** at $4.50 per long ton. Address Custodian B. F. Stapleton, U. S. P. O., Denver, Col.

+1652—Norfolk, Va.—This contract (Vol. 8, p. 871), which provides for furnishing the Navy Department with approximately 600 tons of Connellsville 72-hr. coke for use at the Navy Yard (Schedule 9034), was awarded to **Debevoise-Anderson & Co.,** of New York, at $4.97 per ton. Marshall, Matlack & Co., of Philadelphia, bid $7.80 per ton. Address Paymaster General, Samuel McGowan, Navy Department, Washington, D. C.

1657—Chicago, Ill.—This contract (Vol. 8 p. 911) which provides for furnishing the Sefton Manufacturing Co. with approximately 4,000 tons of Franklin County 2-in. screening has been awarded to the **Thomson & Burton Coal Co.,** at 85c. per ton at the mines. Address Pur. Agt. R. H. Clenny, Sefton Manufacturing Co., 1301 W. 35th St., Chicago, Ill.

1664—Atlantic City, N. J.—This contract (Vol. 8, p. 911) which provides for furnishing the Hotel Dennis with approximately 4,000 tons of anthracite buckwheat coal has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of the current year. Address Purchasing Agent, Hotel Dennis, Atlantic City, N. J.

1665—Sioux City, Iowa—The Cudahy Packing Co. have awarded this contract (Vol. 8, p. 911), to the **Peabody Coal Co.** of Chicago, at a price understood to have been 75c. per ton for Carterville, 1½-in. screenings. Address Pur. Agt. P. A. Moody, Cudahy Packing Co., Chicago, Ill.

1678—Philadelphia, Penn.—This contract (Vol. 8, p. 912), calling for anthracite buckwheat coal for the Hahnemann Hospital has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the period ending Mar. 21, 1916. Address Purchasing Agent, Hahnemann Hospital, Broad and Race St., Philadelphia, Penn.

1694—Philadelphia, Penn.—This contract (Vol. 8, p. 957), which provides for furnishing the fuel requirement of the Thomas Devlin Manufacturing Co. has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of the current year. Address Pur. Agt. H. Drinkhouse, 3d and Lexington Aves., Philadelphia, Penn.

1697—St. Louis, Mo.—This contract (Vol. 8, p. 958), which provides for furnishing the fuel requirements of the Independent Breweries Co., has been awarded as follows: American Brewery, 300 to 600 tons of 1¼-in. screenings per month to the **Schroeter Bros. Coal Co.,** McClintock coal; National Brewery, 300 to 600 tons of either Nos. 2, 3, 4 or 5 or mixtures of washed sizes, **Big Muddy Coal and Iron Co.,** Murphysboro coal; Columbia Brewery, 500 tons per month of 1½-in. screenings, **Schroeter Bros. Coal Co.,** McClintock coal; Empire Brewery, 500 to 600 tons per month of 1½-in. screenings or Nos. 2, 3, 4 or 5 or mixed washed sizes, **Big Muddy Coal and Iron Co.,** Murphysboro coal; Central Brewery, 500 to 600 tons per month of 2-in. lump and Nos. 3, 4 or 5 washed or mixed washed sizes, **Consolidated Coal Co.,** Mt. Olive coal; Gast Brewery, 400 tons per month of 2-in. lump and either Nos. 3, 4 or 5 washed or mixed sizes, **Consolidated Coal Co.,** Mt. Olive coal; Wagner Brewery, 350 tons per month of 1½in. screenings and Nos. 2, 3, 4 or 5 or mixed washed sizes, **Big Muddy Coal and Iron Co.,** Murphysboro coal. For the National, Central, Empire and Wagner breweries carload deliveries are required and delivery to the others is by wagon. The contracts run from Sept. 1, 1915, to Sept. 1, 1916. Deliveries made by the different companies since Sept. 1 will be included in settlements under the contracts, which were not closed until this week. Address Pur. Agt. W. B. Robinson, Independent Breweries Co., St. Louis, Mo.

1739—Philadelphia, Penn.—This contract (Vol. 8, p. 999), which provides for furnishing the requirements of the W. J. McCahan Sugar Refining Co. has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of the current year. Address Purchasing Agent, The W. J. McCahan Sugar Refining Co., Tasker St., Philadelphia, Penn.

1748—Mansfield, Ohio—This contract (Vol. 8, p. 1043), which provides for furnishing the Mansfield Sheet and Tin Plate Co. with approximately 30,000 tons of ¾-in. lump coal during the ensuing year, has been awarded to **Voegele Bros.,** of Mansfield, Ohio, on the National Coal Co.'s "Little Kate" Cambridge Coal. Address Pres. W. H. Davey, The Mansfield Sheet and Tin Plate Co., Mansfield, Ohio.

1753—Lisbon, Ohio—This contract (Vol. 8, p. 1,043), which provides for furnishing the local Water-Works with its annual supply of coal, has been awarded to the **Neyley Coal Co.** at $1.55 per ton delivered. Address Clk. W. E. Ferrall, Bd. of Pub. Affairs, Lisbon, Ohio.

1766—Philadelphia, Penn.—This contract (Vol. 8, p. 1044; Vol. 9, p. 106), which provides for furnishing the Link-Belt Co. with between 5,000 and 6,000 tons of buckwheat coal, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first quarter of the current year. Address Pur. Agt. A. P. Haines, Link-Belt Co., Nicetown, Philadelphia, Penn.

1767—Camden, N. J.—This contract (Vol. 8, p. 1,044), which provides for furnishing the Southwark Manufacturing Co. with its fuel requirements has been awarded to the **Philadelphia & Reading Coal and Iron Co.** until Apr. 1. The company consumes about 2,500 tons of pea coal per annum. Address Secretary, Southwark Manufacturing Co., foot of Winslow St., Camden, N. J.

1769—New Castle, Del.—This contract (Vol. 8, p. 744), which provides for furnishing the Baldt Steel Co. with approximately 1,700 tons of broken coal has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of this year. Address Pur. Agt. E. A. Pederick, Baldt Steel Co., New Castle, Del.

1770—Philadelphia, Penn.—This contract (Vol. 8, p. 1,044), which provides for furnishing C. O. Struse & Sons, brick manufacturers, with anthracite broken coal, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of the current year. Address Purchasing Agent, C. O. Struse & Sons, Manyunk, Philadelphia, Penn.

1771—New Orleans, La.—This contract (Vol. 8, p. 1044), which provides for furnishing the Ruddock-Orleans Cypress Co. with its annual fuel requirements involving between 50 and 60 cars of bituminous coal a month, has been awarded to the **Brown Coal Co.,** of Memphis, Tenn. Address Purchasing Agent, The Ruddock-Orleans Cypress Co., Carrollton Ave. and New Basin St., New Orleans, La.

1775—Chester, Penn.—This contract (Vol. 8, p. 1044,) calling for annual supply of pea coal for the Crozier Home and Hospital, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** up to Apr. 1, 1916. Address Sec. S. K. Ubill, Crozier Home and Hospital, Chester, Penn.

1788—Philadelphia, Penn.—This contract (Vol. 8, p. 1088), which provides for furnishing the fuel requirements of the S. J. Creswell Iron Works, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** to Apr. 1. Address Secretary, S. J. Creswell Iron Works, 23d and Race St., Philadelphia, Penn.

1800—Philadelphia, Penn.—This contract (Vol. 8, p. 1088), which provides for furnishing the Girard Iron Works with its annual fuel supply, involving about 800 tons of anthracite rice coal, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** Address Purchasing Agent, Girard Iron Works, 22d and Allegheny Aves., Philadelphia, Penn.

✚1808—Easton, Penn.—This contract (Vol. 8, p. 1088), which provides for furnishing the City Government with approximately 1,500 gross tons of buckwheat and 90 tons of stove, deliveries to be completed by Apr. 1, has been awarded to **Hartzell & Moss** at $3.45 for buckwheat and $6.95 for stove. Address City Clk. J. H. Warner, Easton, Penn.

✚1823—Canton, Ohio—This contract (Vol. 8, p. 1089), which provides for furnishing the local Pumping Station with coal as may be required during the ensuing year, has been awarded to the **Steiner Coal Co.** on Pittsburgh No. 8 Crescent mine nut and slack at $1.77 per ton. Address Clk. Clara Huber, Service Dept., Canton, Ohio.

1827—Conshohocken, Penn.—This contract (Vol. 8, p. 1089), calling for anthracite broken coal for the Alan Wood, Iron and Steel Co., has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first quarter of 1916. Address Pur. Agt. A. D. Wood, Widener Building, Philadelphia, Penn.

1829—Philadelphia, Penn.—This contract (Vol. 8, p. 1089), which provides for furnishing the fuel requirements of the St. Timothy Hospital, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of the current year. The hospital usually requires about 1,000 tons of pea coal per annum. Address Sec. J. V. Merrick, St. Timothy's Hospital, Wissahickon, Philadelphia, Penn.

1831—Philadelphia, Penn.—This contract (Vol. 8, p. 1089), which provides for furnishing the Philadelphia Warehousing and Cold Storage Co. with its fuel requirements during the first quarter of the current year, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** Address Secretary, Philadelphia Warehousing and Cold Storage Co., Delaware Ave. and Noble St., Philadelphia, Penn.

1832—Wilmington, Del.—This contract (Vol. 8, p. 1989, Vol. 9, p. 148), which provides for furnishing the fuel requirements of the Lobdell Car Wheel Co., has been awarded to the **Philadelphia & Reading Coal and Iron Co.,** until Apr. 1. Address Purchasing Agent, Lobdell Car Wheel Co., Wilmington, Del.

1834—Philadelphia, Penn.—This contract (Vol. 8, p. 1089), which provides for furnishing the fuel requirements of the Wabash Mills Co., has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first three months of the current year. The company has been consuming bituminous coal and is now trying out anthracite. Address Purchasing Agent, Wabash Mills Co., Manayunk, Philadelphia, Penn.

1836—New Castle, Del.—This contract (Vol. 8, p. 1089), calling for supply of broken coal for the American Manganese Steel Co., has been taken by the **Philadelphia & Reading Coal and Iron Co.,** for January, February and March, 1916. Address Pur. Agt. N. C. Peebles, American Manganese Steel Co., McCormick Building, Chicago, Ill.

1837—Philadelphia, Penn.—This contract (Vol. 8, p. 1089), which provides for furnishing the requirements of the Kingan Provision Co., has been awarded to the **Philadelphia & Reading Coal and Iron Co.,** for the first quarter of the current year. Address Purchasing Agent, Kingan Provision Co., 8th and Willow St., Philadelphia, Penn.

1840—Philadelphia, Penn.—This contract (Vol. 8, p. 1089), which provides for furnishing Hance Brothers & White with buckwheat and rice coal, has been awarded to the **Philadelphia & Reading Coal and Iron Co.,** for the period ending Apr. 1 of the current year. Address Purchasing Agent, Hance Brothers & White, Willow and Marshall St., Philadelphia, Penn.

1842—Philadelphia, Penn.—This contract (Vol. 8, p. 1090), which provides for furnishing the requirements of the Niles-Bement-Pond Co., involving approximately 900 tons of steamboat coal per annum, has been awarded to the **Philadelphia & Reading Coal and Iron Co.,** for the first quarter of this year. Address Purchasing Agent, Niles-Bement-Pond Co., Nicetown, Philadelphia, Penn.

1843—Gloucester, N. J.—This contract (Vol. 8, p. 1090), which provides for furnishing the requirements of the Welsbach Co., involving approximately 1,000 tons of anthracite broken coal per annum, has been awarded to the **Philadelphia & Reading Coal and Iron Co.,** until Apr. 1. Address Purchasing Agent, Welsbach Co., Gloucester, N. J.

1901—Philadelphia, Penn.—This contract (Vol. 9, p. 107), calling for buckwheat coal for the Germantown Hospital, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first quarter of the current year. Address Purchasing Agent, Germantown Dispensary and Hospital, Penn and Chew St., Germantown, Philadelphia, Penn.

1903—Philadelphia, Penn.—This contract (Vol. 9, p. 108), calling for buckwheat coal for the House of Good Shepherd, has been closed by the **Philadelphia & Reading Coal and Iron Co.** for the period ending Mar. 31, 1916. Address Mother Superior, House of Good Shepherd, Germantown, Philadelphia, Penn.

1906—New York, N. Y.—Awards in this contract (pp. 108, 148) have been made as follows:

ZONE 5. Providing for furnishing 490 tons of egg coal and 92 and 160 tons each of stove coal to **S. Tuttle's Sons & Co.** at $6.87 each. **J. F. Schmadeke, Inc.,** was awarded the contract for the other requirements of this zone as follows: 2 tons of nut, $7.24; 2,200 tons of buckwheat No. 1, $4.58; 150 tons buckwheat No. 1, $4.48; 185 tons buckwheat No. 1, $4.18; 200 tons buckwheat No. 3, $3.75; and 250 tons mine-run, $5.75 per ton.

ZONE 6. 400 tons of egg and 87 tons of stove at $7.34 per ton each and 250 tons of buckwheat No. 1 at $4.48 per ton to **J. F. Schmadeke, Inc.**

ZONE 7. 425 tons of egg, 105 tons of stove and 80 tons of egg and stove, mixed, to **S. Tuttle's Son & Co.** at $6.78 per ton each; 800 tons of buckwheat No. 2 and 75 tons of buckwheat No. 1 to **Charles H. Reynolds & Son,** at $3.25 and $3.75 per ton respectively.

ZONE 8. 290 tons of egg and 118 tons of stove to **S. Tuttle's Son & Co.** at $7.18 per ton each; 12,000 tons of buckwheat No. 1, at $5.17 per ton, and 200 tons of buckwheat No. 1 at $5.93 per ton to **Pattison & Bowns.**

ZONE 9. 125 tons of egg and 36 tons of stove coal to **Middle Lehigh Co.** at $8 per ton; 250 tons of pea coal to **J. F. Schmadeke, Inc.,** at $5.48 per ton.

ZONE 10. 150 tons of egg coal and 3 tons of stove coal, at $6.93 per ton each, and 1 ton of nut coal at $7.25 per ton, to **A. J. & J. J. McCollum.**

ZONE 11. 50 tons of egg, at $7.48 per ton and 50 tons of stove coal at $8, to **Jamieson & Bond.**

ZONE 13. 150 tons of egg coal at $8.16 per ton and 25 tons of buckwheat No. 1 at $5.39 per ton to **A. J. & J. J. McCollum.**

ZONE 14. 200 tons of egg coal and 1 ton of stove coal to **S. Tuttle's Son & Co.** at $7.09 per ton respectively.

ZONE 17. **Joseph Johnson & Son** were awarded the contract for furnishing 8,000 tons of buckwheat No. 1 in two lots of 6,400 and 1,600 tons, respectively, at $6.25 per ton.

ZONE 18. 4,100 tons of buckwheat No. 1 to **Pattison & Bowns** at $5.07 per ton.

ZONE 19. **B. Nicoll & Co.** secured the contract for furnishing the following parcels: Mine-run, 100 tons, $5.88; 400 tons, $5.98; 400 tons, $6.08; 1,200 tons, $5.98; 1,200 tons, $5.88; 700 tons, $5.81; 300 tons, $5.93; 500 tons, $5.73; 300 tons, $5.93, and 400 tons, $5.88 per ton. Buckwheat No. 1—200 tons, $4.78; 1,400 tons, $5.65; 300 tons, $5.88; 600 tons, $5.83; 900 tons, $5.93, and two lots of 900 tons each at $5.43 per ton each.

Address Contract Clerk, Room 1230, Municipal Bldg., New York, N. Y.

1907—Philadelphia, Penn.—This contract (Vol. 9, p. 108), calling for buckwheat coal for Becker, Smith & Page, has been awarded for the first quarter of 1916 to the **Philadelphia & Reading Coal and Iron Co.** Address Secretary, Becker, Smith & Page, Swanson St. and Snyder Ave., Philadelphia, Penn.

1909—Philadelphia, Penn.—This contract (Vol. 9, p. 108), calling for anthracite pea for Carey Bros. Wall Paper Mfg. Co., has been taken by the **Philadelphia & Reading Coal and Iron Co.** for the quarter ending Mar. 31, 1916. Address General Manager, Carey Bros. Wall Paper Mfg. Co., 2228 N. 10th St., Philadelphia, Penn.

1912—Chester, Penn.—This contract (Vol. 9, p. 108), covering fuel requirements of the Seaboard Steel Casting Co., has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for quarter ending Mar. 31, 1916. Address Treasurer, Seaboard Steel Casting Co., Chester, Penn.

1914—New York, N. Y.—Awards on this contract (pp. 108, 149) have been made as follows:

ZONE 3. 1,500 gross tons of buckwheat No. 1 to **Pattison & Bowns** at $5.85 per ton.

ZONE 17. 4,100 gross tons of buckwheat No. 1 to **John E. Donovan** at $6.19 per ton.

ZONE 18. 5,500 gross tons of mine-run to **Geo. D. Harris & Co.** at $5.60 per ton, and 3,000 gross tons of buckwheat No. 1 to **Pattison & Bowns** at $5.37 per ton.

No awards will be made on the remainder of the zones.

Address Contract Clerk, Room 1230, Municipal Bldg., New York, N. Y.

Contract Notes

Mena, Ark.—The Mena Electric Light and Power Co. consumes about 300 tons of semianthracite slack per annum. The company does not contract. This coal costs about $1 per ton f.o.b. mines.

Anna, Ill.—The Central Illinois Public Service Co. consumes approximately 10,000 tons of No. 2 screenings per annum. The business is let on competitive bids, and the approximate cost is $1.25 per ton.

Canyon City, Colo.—The Arkansas Valley Railway, Light and Power Co. has a contract covering its fuel requirements for the five-year period ending 1919. It consumes approximately 60,000 tons of pea and slack coal, which costs $1.48 per ton.

Morrillton, Ark.—The Morrillton Light and Power Co. consumes approximately 1,500 tons of mine-run coal per annum, which costs about $2.80 per ton f.o.b. track at their power plant. The business is not done on competitive bids and the company makes no contracts.

Lewiston, Me.—The Androscoggin Mills at this place consume approximately 2,500 tons of Pocahontas, New River and Maryland Imperial coal per annum. The company has storage capacity for 2,800 tons. Address Pur. Agt. James E. Coburn, Androscoggin Mills, Lewiston, Me.

North Bellingham, Mass.—The Bellingham Woolen Co. consumes about 1,000 tons of New River coal per annum. They contract when prices are most favorable. The company has a storage capacity for 500 tons, and deliveries are made by railroad. Address Pur. Agt. W. W. Ollendorff, Bellingham Woolen Co., Bellingham, Mass.

Conneaut, Ohio—The United Brick Co. at this place consume approximately 20,000 tons of slack, and 2,500 tons of three-quarter lump per annum, deliveries being made by railroad at the rate of 60 tons per day. The company has a storage capacity for 350 tons. Address Purchasing Agent United Brick Co., foot of Marshall St., Conneaut, Ohio.

New Orleans, La.—The requirements of the Dixie Ice Manufacturing Co. (Vol. 8, p. 1045), are only 250 tons per month instead of 450 as previously noted, and the supply will be furnished for some time to come by the **Tennessee Coal, Iron and Railroad Co.** Address Ch. Engr. J. A. Lamar, the Dixie Ice Manufacturing Co., 2621 Banks St., New Orleans, La.

El Paso, Tex.—The American Smelting and Refining Co., operating plants at Chihuahua City and at Durango, Mex., have closed a contract with the Olmos Coal Co. here for several thousand tons of coal to be delivered at the company's plants as soon as conditions in Mexico become quiet and rolling stock is available on the Mexican railways for transporting the coal. Several small shipments of coal have already been made, sufficient to enable the company to open its plants.

Harrisville, R. I.—The Stillwater Worsted Co. consumes from 4,000 to 5,000 tons of New River coal per annum, deliveries being made by water and by New York, New Haven & Hartford R.R. They have a storage capacity of 1,000 tons, and deliveries are ordinarily made at the rate of 80 to 90 tons per week, though when the mills are working on a 24-hr. schedule, as high as 200 tons per week may be required. Address Pur. Agt. A. T. Levy, Stillwater Worsted Co., Harrisville, R. I.

Panama, C. Z.—The closing of the Panama Canal, with the consequent diverting of traffic to the Strait of Magellan, has yielded concrete examples to illustrate the fact that the cost of coal for the additional distance traveled exceeds the amount of the canal tolls for many vessels. Consul General Alban G. Snyder, of Panama, quotes from the Canal Record the figures relating to the steamship "Matoppo," making the voyage from San Francisco to London. If the canal had been open, the vessel would have saved $3,000 on the voyage.

Nantes, France—A short while since a cargo of American coal arrived in this port. It was shipped as an experiment. When the coal was on its way the sellers announced its chemical composition and also the fact that about 70 per cent. of it was large. The chemical composition was satisfactory as also the proportion of large, and buyers were found for the greater part of the shipment. When the coal arrived several of the prospective buyers went to the ship and inspected it. They found that the proportion was about 20 per cent. large and the rest dust. The deal was consequently a failure as far as the Nantes market was concerned. The sellers naturally insisted that when the coal left America the proportions were as they had stated. Prepayment for this coal would have been disastrous to the prospective Nantes buyers.